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On Our Cover: Anastasia Steele (Dakota Johnson) and Christian Grey (Jamie Dornan) get entangled in a heated liaison in *Fifty Shades of Grey*, shot by Seamus McGarvey, ASC, BSC. (Photo by Chuck Zlotnick, courtesy of Universal Pictures and Focus Features.)

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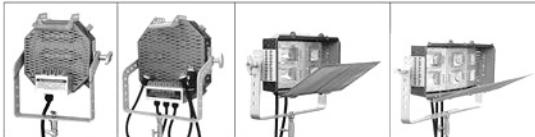
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THIS MONTH'S CONTRIBUTORS

Mark Dillon

is a freelance writer ("Slave to Love," p. 32).

Michael Goldman

is a Los Angeles correspondent for the magazine (Production Slate, p. 20).

Noah Kadner

is a workflow specialist whose clients include Panasonic and Apple, Inc. (Short Takes, p. 14).

Debra Kaufman

is a freelance writer ("Outside the Box," p. 48).

Jean Oppenheimer

is a Los Angeles correspondent for the magazine ("Feeling the Light," p. 62).

Phil Rhodes

is a filmmaker and freelance writer ("Outside the Box," p. 52).

Iain Stasukovich

is a filmmaker and a New York correspondent for the magazine ("Outside the Box," p. 57).

Editor's Note



Bringing a sexually provocative, bestselling novel like *Fifty Shades of Grey* to the big screen is a tricky prospect. It's all too easy to alienate a smash book's dedicated fans, who scrutinize every detail of a movie adaptation like scholars poring over the Dead Sea Scrolls. It's also a challenge to calibrate how torrid the intimate scenes should be, and what ramifications any onscreen couplings will have on the picture's MPAA rating. If the amatory exertions run too hot, the dreaded NC-17 beckons; if they're too tame, the filmmakers may be accused of selling out the sizzle and turning the entire enterprise into Hollywood's version of a Harlequin romance.

With *Fifty Shades*, cinematographer Seamus McGarvey, ASC, BSC and director Sam Taylor-Johnson faced the additional test of visualizing a relationship between characters whose dominant/submissive

dalliances could also possibly alienate a significant portion of the project's potentially enormous audience. In detailing their approach for Canada-based correspondent Mark Dillon ("Slave to Love," page 32), the filmmakers address these artistic choices while also outlining their technical strategies. "You're always going to have some fans of the book thinking the movie is a lesser version [of the story] than the one in their imaginations," McGarvey concedes. "But Sam has a unique take on the epic in the everyday, and psychological states, particularly the feminine erotic imagination, and she's brought that [to the screen]." Taylor-Johnson adds, "It wasn't in my interest to be too graphic. For me, eroticism tends to be all over the minute you see too much." Whether or not they've succeeded in striking this delicate balance will probably depend on each viewer's personal feelings about intimacy, voyeurism and socio-sexual taboos.

This issue's special focus on teleproduction ("Outside the Box," page 48) spotlights work that's no less adventurous. *The Affair*, shot by ASC member Steven Fierberg, pulls back the covers on an extramarital liaison; *Doctor Who*, the most recent regeneration of the wildly popular BBC science-fiction series, places no limits on the imagination of cinematographer Rory Taylor; and *Vikings*, shot by PJ Dillon, presents stylized period drama rendered in a "punk-rock aesthetic."

Crafting classic television is the lasting legacy of ASC member Bill Roe, this year's recipient of the Society's Career Achievement in Television Award — although he is also known for his shot-making ability on the links, which has led his name to be inscribed multiple times on the ASC Golf Tournament's trophy. The qualities that Roe's favorite pastime requires — patience, precision and the ability to think one's way out of traps and tricky lies — are equally valuable on set. His work on *The X-Files* alone ensured his canonization in the television realm, but his credits also include the shows *Castle*, *Las Vegas*, *Day Break* and *Terminator: The Sarah Connor Chronicles*. He's also known for marrying well, hosting epic Super Bowl parties, and freely loaning spare clubs to duffers (like yours truly) in the sincere hope that they will somehow learn to emulate his Zen temperament, if not his swing. Jean Oppenheimer's overview of Roe's career ("Feeling the Light," page 62) offers heartfelt testimonials from many of Bill's closest collaborators, as well as insights from the man of the hour on his rewarding run behind the camera.

A handwritten signature in black ink, appearing to read "Stephen Pizzello".

Stephen Pizzello
Editor-in-Chief and Publisher



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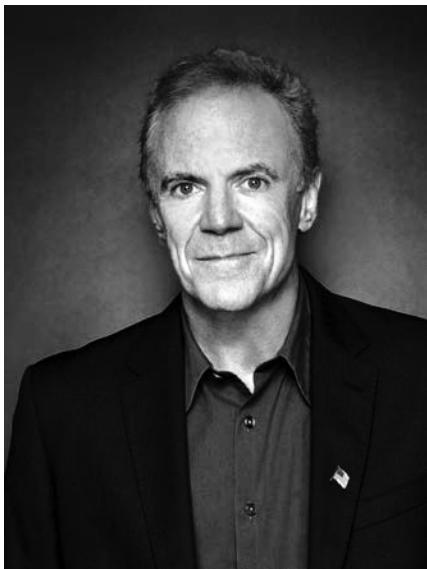
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President's Desk



Seeing as it's awards season and everyone's in a froth about hailing the superstars of our profession, I think it's appropriate to refocus some of that spotlight on the vast majority of cinematographers, the unsung heroes of what we do. You know who I'm referring to: the lunch-pail guys and gals, the ones who deliver superior work day in and day out on every production they tackle, yet for whatever reason never manage to punch through to the honors level. They are truly the backbone of this industry, and if you can put aside any bias, you'll find there's as much to admire and learn from them as there is from those at the top of the pyramid.

As examples — and to avoid provoking issues by naming any of my contemporaries — I refer you to John Russell, ASC (active from the 1940s through the 1960s) and John Warren, ASC (the '50s to the '70s). Russell shot Alfred Hitchcock's *Psycho*, but apart from that picture I defy you to associate either of these cinematographers with another tip-of-the-tongue title. Nonetheless, they were on the job without pause for decades, and found among their output are innumerable examples of the craft that compare with the best cinematography of their day. They were total pros and certainly productive, so why don't we ever hear them mentioned along with the Gregg Tolands, William A. Frakers and Conrad Halls? Why didn't they reach that level of immortality? Who knows — maybe they just never went to the right cocktail parties.

Take a moment to examine the careers of some of the current journeymen and women whom you might ordinarily ignore. We're living in an era when there is more outstanding — and unrecognized — talent at the camera than ever before. None of these individuals are household names, but like Russell and Warren, they continue to work under the radar, steadily cranking out gorgeous images with a minimum of fuss. Eventually, a few of them might break away from the crowd. More likely, they'll continue to do what they do in their very refined, little-noticed corner of the business while the big guns will continue to hog the laurels — not unjustifiably so, just unnecessarily.

You might wonder how it is that some cinematographers rise to the heights while others of equal or even greater talent seem condemned to do their thing in expert obscurity. Certainly, nothing is acquired without hard work and an extreme level of dedication. You also have to be ready to deliver when the opportunity for a big break presents itself. But those are the minimum requirements for reaching the middle of the pecking order. Beyond that, it's undeniable that luck and good timing play an enormous role in reaching major success. It's astonishing to see sometimes. Why *this* one and not *that* one? There's a giant loony bin somewhere out there filled with those who have tried to find the answer. I'd advise you not to bother.

While this topic brings no satisfaction to someone who might be feeling boxed in career-wise, it does offer hope. Good taste is also an absolute for joining the elite class. If there exists a distinct boundary separating the competent from the really well done, it assures us that there's an even more acutely drawn line between the really well done and the excellent. First-class work is unmistakable when you see it, and though it can't be taught, it can be developed. Absent the ethereal nature of much of our work and the shifting trends of the moment, I would suggest that a faster track to the top begins with putting less emphasis on technology and more on thinking through the ways in which we apply it. We all use the same tools, yet some get consistently better results. Take note of their work, and then start moving away from the pixels and toward the real power of what we do.

Until that sentiment catches on, we can abide ourselves by seeking out and encouraging the great work of those who don't ordinarily get much of the attention. Don't worry — the marquee names and big award winners will continue being marvelous. Just give a moment's attention to the rest of the pack. And don't be afraid to admit it — there is excellence there, too.

A handwritten signature in black ink, appearing to read "Richard P. Crudo, ASC".

Richard P. Crudo
ASC President



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Short Takes



Cinematographer Robbie Ryan, BSC and directors Daniel and Matthew Wolfe shot in and around Kiev, Ukraine for the music video for Paolo Nutini's "Iron Sky."

Dancing in Dystopia

By Noah Kadner

Clocking in at more than six minutes in length, Scottish musician Paolo Nutini's song "Iron Sky" explores themes of oppression and individual uprising, and incorporates an impassioned dialogue sample from Charlie Chaplin's film *The Great Dictator*. Its music video — which adds another two minutes to the runtime — complements the song with visuals of a dystopian society of addicts and victims of trauma who find intermittent relief through drugs and dancing.

Shot in and around Kiev, Ukraine, the video was directed by brothers Daniel and Matthew Wolfe and photographed by Robbie Ryan, BSC. "I've worked with Daniel and Matthew quite a bit," says Ryan. "We recently did a feature together called *Catch Me Daddy*. As a starting point, Daniel tends to put together a bible — with the help of production partner Alex Hulsey — with a huge list of locations and scenarios he'd like to film, and he does a lot of on-the-street casting. For "Iron Sky," their idea was this hive-mind science-fiction concept with a priority on local characters. Paolo was happy to give Daniel a lot of freedom to run with the concept."

The video is predominantly handheld, and Ryan opted to shoot in the 2-perf 35mm format with an Arriflex 235 camera. "I prefer shooting film [rather than] digital," the cinematographer explains. "[With digital] you know everything you're going to get is right there on the monitor, whereas a film image always improves from what you first see on the video assist."

"The 235 is a lovely camera that's simple, lightweight and very sturdy," he continues. "Ironically, our camera did break at the

end of the first day, but [2nd-unit cinematographer] Deepa Keshvala and I eventually figured out what was broken and fixed it ourselves. That was a bit of a nervous time — if we hadn't been able to [fix the camera], we wouldn't have been able to shoot 2-perf, and the producer, Lee Groombridge, would have needed to spend a lot more of our limited budget on additional film stock."

Speaking to the 2-perf format's native 2.40:1 aspect ratio, Ryan says, "Daniel really likes it, because what you see is what you get, and you can't really change or re-frame the shots in postproduction. I [also] like that you're setting the final image as you shoot — it's living life more on the edge."

For his shooting stocks, Ryan secured a variety of 35mm short ends from a number of different sources, including a local vendor in Kiev. "It was mainly Kodak Vision3 200T 5213 and 500T 5219, with a tiny bit of 50D 5203," the cinematographer details. "We also shot some Fuji [Eterna] Vivid 160 tungsten, as I'm a massive fan of Fuji stock. Some of the Kodak stock we got was up to eight years old and hadn't even been strip tested, but it had an interesting texture and grain, and Daniel really liked its look."

Ryan paired the 235 with Arri/Zeiss Master Prime T1.3 lenses. "I'm really fond of Master Primes, which work great for film cameras," says Ryan. "Daniel shoots quite wide, and so we stayed mostly on the 21mm. Sometimes we'd go a little wider at 18mm. That practice didn't really change a lot over the different shooting days. We'd decide on the shot and move the camera, and we didn't repeat takes much. That's the way Daniel likes to work, and as a result, he gets higher-quality footage and a greater diversity of imagery. He gets the feel of a scene and then we move on." ➤

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Top: A frame grab from the finished project. Middle: Local non-actors were cast to populate the dystopian music video. Bottom: Ryan (right) confers with Daniel Wolfe (middle) and 1st AD Anna Buryachkova-Kharashvili.



The location shoot was completed in a mere three days in July 2014. "It's always a challenge trying to achieve a lot on a tight schedule," says Ryan. "This was the first time we'd ever shot in Ukraine. The local crew was great — they worked so hard and never complained. There was also a great enthusiasm from the local talent we had in front of the camera — their faces were so full of life. There's loads of inspiration to be found in Kiev, and we didn't have far to look for our scenes."

"From a production-design standpoint, not much extra needed to be done to the chosen locations," Ryan adds. "Daniel and Matthew tend to be very thorough with their location searches. Kiev has an amazing sense of architecture that, as outsiders, you see in a different way. We never had any problems finding a good place to shoot. Everything was set in daytime, and the lighting was very basic and very fast."

Though the production had a modest lighting truck filled with equipment while on location, Ryan found there was little need for additional lighting in most scenes. "The majority [of the music video] was just shot with available light," the cinematographer says. One key exception, he adds, was "a section in the middle of the song, with these men in suits staring at naked people. We shot it in a sanitarium with a lot of windows just outside of Kiev. To lift the ambience and keep the windows from blowing out, we bounced some 6K HMLs off the ceilings and off Ultrabounce textiles."

Throughout the shoot, Ryan says he



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—Alex Catalán, AEC, Director of Photography,
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Top: Two militia boys walk through ruins.
Bottom: The crew captures the scene.



sought "a natural look. It was not designed as pure reportage, but more of a *National Geographic* nature-photography feel. That's the kind of look Daniel always likes to go for, and I like it as well."

"*Iron Sky*" begins with a series of subtitled, documentary-style video interviews in which various sufferers describe their ailments and their suspicions about the causes. The initial edit of the video did not include this introduction, but the filmmakers decided it was necessary to help better define the overall story. In order to distinguish the introduction from the rest of the music video, Keshvala shot the interviews on an old Sony Hi8 video camera in 4:3 standard definition. (As with the rest of the video, though, the introduction was shot handheld with available light.)

"The video introduction really gives the context you need," says Ryan. "The interviews set the premise in stone, and Daniel and Matthew loved what Deepa did with that footage."

At various points during the video, the location vignettes are intercut with abstract organic imagery produced by Chris Parks at Oxford Scientific Films. "They use special microscopic lenses to capture various chemical reactions in macro," says Ryan. "All of those natural elements have this beautiful celestial explosion/wormhole feeling. For '*Iron Sky*', that footage was meant to perhaps represent the hive mind having a terrible headache. It's all very trippy stuff and totally open to interpretation, and it gives the video another visual dimension."

Dailies for "*Iron Sky*" were processed by i dailies in London. After the negative was scanned at 2K resolution on a Spirit 4K, Simon Bourne at Framestore conducted the final digital grade using FilmLight's Baselight Two, and Framestore then produced a 2K DPX master from which the HD deliverables were derived. "Daniel has a good relationship with Simon, who is a really brilliant and talented guy," says Ryan. "Simon knows what Daniel likes in the grade. He's very

tuned into the needs of the project."

Bourne recalls, "When I asked Daniel what he wanted to achieve in the look for '*Iron Sky*', he said, 'Think of a vivid hallucinatory experience, something bleak but viscerally beautiful and full of color — something spiritual.' I've worked with Daniel for 12 years, and this was the first time he gave me a brief about emotion to interpret and reflect on the screen."

Ryan adds, "What typically happens is that Simon goes away to grade on his own for a while, and then shows us the results. It's always pretty much bang-on, which is fantastic for me. Tom Lindsay, Daniel's editor, also did a fantastic job of battling to get the best video possible from our marathon of shooting."

Ryan is not alone in his enthusiasm for the completed video. The 2014 Camerimage International Film Festival in Bydgoszcz, Poland, honored "*Iron Sky*" with its Best Cinematography in a Music Video award. "Visually, '*Iron Sky*' has a very simple approach, like a photography book," observes Ryan. "You see a place and its people, and the music is also quite moving. Daniel and Matthew made this video happen together as a very close, amazing unit. You can't quite put your finger on why it's all so emotional, but it's there, and I really like that."

To view the video for "*Iron Sky*," visit <http://vimeo.com/102826203>.



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Production Slate

Veteran secret agent Harry Hart (Colin Firth) stands outside the tailor shop that provides a front for the titular organization's operations in *Kingsman: The Secret Service*.



Secret Agent Men

By Michael Goldman

Kingsman: The Secret Service tells the tale of an ultra-secret British spy agency that recruits a young street punk (Taron Egerton) for its training program, just as an evil-genius billionaire (Samuel L. Jackson) initiates a twisted plan to wreak havoc on the world. Director Matthew Vaughn invited cinematographer George Richmond to Munich in the summer of 2013 to shoot tests, determined to find the right techniques to produce the classic-film feel he was after while shooting digitally.

"Matthew wanted the feeling of an older movie," Richmond recalls. "There was never one specific image or reference in mind, but the script evoked older cloak-and-dagger movies — spies in pinstriped suits, carrying umbrellas like in [the British series] *The Avengers*, and humorous villains [emblematic of] the Roger Moore era of James Bond. Matthew said all of his [previous] movies had been shot on film — and always anamorphic — so the first thing he wanted to know was how anamorphic works on digital, and how to get that old-style feeling."

Richmond says their conversations came down to the nature of the glass they would end up selecting, "and how it is actually the lenses that can make something look old and a bit softer. Vantage's Hawk [V-Series anamorphic primes] have beautiful aberrations, with little out-of-focus banding areas around the edges of the frame,

distorted uprights at the edges, and those elliptical, out-of-focus flares, which can help digital photography feel more like an older movie shot on film." The V-Series lenses only date back to the early 2000s, but, Richmond attests, "they have the look we wanted, especially the wide lenses when shooting between T2.8½ and T4."

Richmond recommended shooting *Kingsman* with the Hawk lenses on Arri Alexa XT Studio cameras, whose native 4:3 sensor is well suited to anamorphic work. He also wanted to take advantage of the camera's rotating-mirror shutter, which he felt captured motion more like a film camera, as well as its motorized, rear-mounted neutral-density filter system. "With the flick of a button," he explains, "a little filter slides across the back [of the lens] for shooting day exteriors. This is a great thing, because it means you don't have to stack so many filters in front of the lens."

According to 1st AC Chris Bain, the production carried a set of Hawk V-Series primes — from 30mm to 250mm — and added a set of V-Lites that were paired with an Alexa XT for Steadicam and handheld work. They also regularly used two V-Plus anamorphic zooms (45-90mm T2.8 and 80-180mm T2.8) and a V-Plus anamorphic macro (120mm).

"We made good use of the 120mm macro, often starting in the macro world and pulling back to develop into a scene," Bain recalls. "Using a Preston remote-focus system, I trimmed the scale of the lens to the range of the distance needed for the shot — essentially giving us more control of that part of the scale." ➤

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Top: Harry helps Eggsy (Taron Egerton), a young street punk, turn his life around by trying him out for a position with Kingsman.
Bottom: Cast and crew prepare to shoot.



"I used the same approach as I would on a film show to pull focus," Bain continues. "I only used the monitors for framing reference, or as an eyepiece to take eye-focus marks. Obviously, the main difference [with digital] is that you hopefully get an all-clear on focus as you are shooting, and no nasty surprises the following morning [in the lab report]."

Digital-imaging technician Joshua Callis-Smith notes that the Alexas recorded

ArriRaw to internal XR modules, "shooting predominantly 4:3 with a 2.0x de-squeeze on our monitoring, with a custom frame line adding a 50-percent mask left and right of the image to mask off the additional width of the sensor outside of our 2.40:1 extraction area." He adds that data-management technician Simon Chubbs offloaded the XT magazines in a mobile, near-set lab each shooting day.

Richmond established a plan for on-

set monitoring and color grading that would allow for a consistent look throughout principal photography and into postproduction. "Once we began shooting extensive tests with the lenses we had chosen, we wanted to take those tests into the DI chain," Richmond explains. "So with our DI facility [London's Goldcrest Post Production] and my colorist, Rob Pizsey, we created LUTs for night and day interiors and exteriors, making contrasty ones, soft ones, and mixing colors to get warm skin tones until we felt we had something that looked a bit like an older-movie style. The great thing about conceiving that look and creating LUTs in prep is that, as a cinematographer, I feel like I am protecting the initial idea so that everybody will get used to seeing the same image all the way to the DI, with no surprises in the final grade."

Pizsey adds that his involvement during testing "allowed me to set basic looks for each [interior and exterior] with a range of different exposures for George to use. All in all, we set about 25 different looks for George to apply as LUTs. We also spent some time with [Callis-Smith] to test those looks with his own equipment, making sure his display monitors were

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Top: Director Matthew Vaughn (second from left) confers with Firth and Egerton while prepping a scene in a train tunnel. **Bottom:** Eggsy finds himself in need of assistance.



matching what we were seeing in the DI theater, and ultimately what we would use as a starting point for the DI."

Callis-Smith emphasizes that "monitoring was central to our workflow," which is why, during prep, the filmmakers took all of the production's monitors — including the onboard Sony OLEDs used with the Alexas — to Goldcrest, where they were calibrated to match the plasma screens in the facility's DI theater. This permitted the filmmakers to do "live monitoring, while also viewing graded dailies and consistent

color on all viewing platforms," Callis-Smith adds.

"The first hurdle was getting calibration correct [at Goldcrest] after the LUTs were built," the DIT continues. "Then we opted to work on set in Rec 709 viewing space, as we knew the majority of our dailies viewings wouldn't be in the DI theater. We applied our LUTs to the live image using [Pomfort's] LiveGrade and [Blackmagic Design's] HDLink, with the image fed into my rig in a way that I could easily distribute the raw feed, graded feed, and what we

called the 'mini DI' output across any of our monitors on set using an SDI router. The monitors always displayed the graded feeds, whereas my waveform monitors always displayed the raw log feeds. We also set up a vectorscope for each graded feed to help maintain color consistency between two or three cameras shooting at the same time."

To generate dailies, Richmond preferred this mini-DI approach — which Callis-Smith performed with Blackmagic Design's DaVinci Resolve 10 — because it allowed files to be rapidly pushed through a secondary color-grading process before they ever left the set. The cinematographer could then give almost instant feedback to the DIT, and 1080p-quality dailies rolled out like clockwork to colleagues, who could view them at any time on iPads using the Copra4 dailies viewing app.

Callis-Smith explains, "we used the mini DI to match every take using processes more commonly seen in a DI suite, to make sure there was 100-percent consistency between shots, especially on exterior scenes with constant changes in cloud coverage. Grading this way allowed me to work with the director of photography in a way I had not been able to before, and it made the use of color an integral part of the shooting workflow. The great part about it was that we could see exactly what we were getting



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Eggsy and his fellow recruits are trapped inside their dormitory when it floods. This "sinking set" was one of the production's biggest builds onstage at Warner Bros. Studios Leavesden.



on the monitors, and George could light with the DI in mind, so that when he walked into the DI, he already knew what he would need to do and how to improve upon what he already had. So we essentially used our LUTs as our light meter, and treated the on-set workflow as if we were already in the DI suite."

In terms of camera movement, Richmond says, "we largely shot off dollies and cranes, made very composed shots, and rarely shot big close-ups. We shot a lot of wide and medium shots, which is more like how older movies were shot." The exception to this approach — or as Richmond calls it, "the modern twist" — related to second-unit/action work, which incorporated more handheld shots as well as "shorter shots with hidden cuts to make them appear to be longer takes," the cinematographer says. "Some of that material was shot with spherical [Angenieux Optimo 15-40mm T2.6 and 28-76mm T2.6 zoom] lenses because they are lighter and more versatile, and were easier for the visual-effects department to work with."

In pursuit of the classic look, Richmond employed a predominantly tungsten lighting scheme, working with "older units,

a lot of Blondes through diffusion frames, a lot of covered wagons — strips of lightbulbs wrapped in heavy diffusion, which you can hide around the set," he explains. However, he says, his goal was to "diffuse tungsten in a more modern way, a more aesthetically pleasing way to my eye, rather than having hard light and multiple shadows all over the place."

To achieve this, gaffer John Higgins and his team built soft boxes that incorporated "the skeleton of a space light fixed rigidly to the structure of the light box, so the box could be inclined at any angle without the lamps moving," Higgins explains. Lighting programmer Stephen Mathie could then use a GrandMA lighting console to control each individual bulb within the soft boxes. Mathie's setup was linked to multiple lighting sources with Socapex multicore cabling, which enabled up to six circuits to be connected to the dimming system using a single cable. This system was then mirrored via wireless link so that, as Richmond emphasizes, "we could dim and control virtually every light we had, apart from HMLs, using an iPad, which was a really good way to work with Matthew, because he likes to work really fast."

"Another great thing about this kind of dimming system is that for every slate we shot, the settings for all the lights would be easily saved into the system's database," the cinematographer continues. "So when second unit came in and took over sets after we had shot on them for a couple of days, all the settings would be there, and my second-unit cinematographer, Fraser Taggart, would know exactly what the first unit had done with the sets. He would get the LUT with the CDL values from us, but he would also get all the information from the dimming desk so he always understood where the light was coming from and how it was dimmed."

The show called for production designer Paul Kirby to oversee a number of elaborate builds, including the tailor shop that fronts for the spy organization's secret operations along the Savile Row section of London; Valentine's lair, the villain's secret base; and a country estate where the spy organization's main headquarters is located. But perhaps the most complicated was the so-called "sinking set" — the recruits' dormitory, which at a key point gets entirely flooded. Shot at Warner Bros. Studios Leavesden in the U.K., the sequence was

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Top: Eggsy and Harry meet Richard Valentine (Samuel L. Jackson), a tech billionaire with devastating plans for the world. **Bottom:** Egerton, Firth, Vaughn, Jackson and actress Sofia Boutella walk through the scene.

accomplished by dropping the entire set into a water tank.

"The set was built on two hydraulic lifts, which would lower the entire set into the water, [stopping just short of submerging the lighting rig]," Richmond explains. "It was important for us to have the set and the lighting rig as one piece, so the light would remain constant while the set was being submerged. The ceiling rig ended up [having] 72 Par cans to illuminate the on-set

ceiling fixtures, which were made of heavily diffused Plexi. There were a number of practical units where we clustered three 2-foot underwater Kino tubes in each fitting, so we could control the intensity by turning bulbs on or off. We also made two underwater wagons, or soft boxes, with eight 4-foot underwater Kino tubes in each light. They were attached to an aluminum tube frame and wrapped in Full Grid Cloth. It was important to make them that way, as they

had to be attached to the set and withstand the forces of the water during the sinking."

For shots above or at the water's edge, the cameras were sealed in scuba bags (supplied by Arri Media) and operated by A-camera operator Stuart Howell and Richmond's brother, B-camera operator Jonathan "Chunky" Richmond. For underwater shots, the cameras were protected with HydroFlex housings and operated by underwater cameraman Mark Silk. "The ceiling rig provided an even, soft light with a nice contrast from underneath, and with highlights from the practicals, it allowed Mark to shoot 360 degrees," Richmond relates. "Matthew wanted the ability to show the danger of the fast-rising water at any moment," so they rigged static cameras with wide lenses at different heights "to cut to at different stages of the sinking, and then we went handheld with the actors to add urgency to their situation."

Another larger-than-life scene involved a skydiving training exercise for new recruits. A surprise turn leads to an elaborate stunt sequence, which was helmed by second-unit director Brad Allan (who also served as *Kingsman*'s stunt coordinator) and shot by aerial director of photography Craig O'Brien with aerial camera operator Norman Kent. The scene was shot using Red Epic Dragon cameras on helmet mounts, and Red and 2.5K Blackmagic Cinema Cameras on belly mounts — systems chosen for their light weight.

"For additional cuts, we also used the Blackmagic Pocket Cinema Camera attached to a wrist mount," adds Richmond. "The plan was to get as much of the sequence as possible in the air and not on bluescreen. They had six days to shoot the sequence, which we had previsualized and then broken down into smaller pieces of action. For each jump, they had around 50 seconds of free-fall time, so they were sometimes trying two or three separate bits of action per jump. We also had helicopter pilot Marc Wolff and aerial cinematographer Adam Dale shooting air-to-air on long lenses, as well as a ground crew shooting up on long lenses. We shot the entire sequence on spherical [Cooke Mini S4 and Zeiss Ultra 16] lenses, because anamorphic

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~ Dalton Campbell



Top: Harry pressures professor James Arnold (Mark Hamill) to divulge information about Valentine's deadly plot. **Bottom:** Cinematographer George Richmond lines up a shot with one of the production's Arri Alexa cameras.

lenses are too heavy and cumbersome to fly with, and we wanted the ability to reframe in post."

The movie also features an envelope-pushing nose-to-nose car-chase sequence, which was directed by stunt coordinator Kenny Bates and shot by Taggart in East London. (Vaughn and Richmond shot the interior portions of the sequence on a London stage with a hydraulic rig.) "Kenny brought his custom-built Mitsubishi Lancer Evo camera car for the driving shots, and also used a Russian Arm and a flight head for some of the sequence," Richmond relates. "The reverse-drive yellow Subaru in

the scene was built by our special-effects department. They basically took the body off the chassis and turned it around so there was a hidden driver looking out the back window, which allowed the reversing car to drive at such speeds. Fraser used our version of night sodium color — [Lee] 102 Light Amber and a Quarter Green — and placed cherry pickers around the streets with 20Ks. Many of the locations were picked for their natural night lighting, as the cars were moving too fast and covering too much distance to light at all."

The cinematographer adds that for the onstage car interior shots, Higgins

employed a ceiling rig with "a selection of soft boxes with our sodium color and rows of Par cans with different colors — red, sodium and clean. Then we had two Vari-Lites on each side of the car on the floor. It was all controlled by the dimming system, so we [programmed a chase sequence] to give the feeling that the lights were passing us by."

Thanks in large part to the up-front efforts to establish the movie's look, Pizsey reports there were "no shocks" when it came time for the final digital grade, which he conducted at Goldcrest Post with Blackmagic Design's DaVinci Resolve. The DI process was used extensively to match exterior footage shot under constantly changing British skies, and to finish a large number of visual-effects shots.

In fact, Pizsey explains, he handled certain effects shots himself, including "carrying out some anti-aging grading using a wide range of techniques to make lead actors appear younger, as [the film's early] scenes take place quite a few years before the rest of the film. We also had to carry out beauty correction throughout, and all those shots were done using [Resolve] — all in real time — to give us the flexibility to adjust and modify each of those shots up to the last day of grading."

Although the DI was "used as a full tool," Richmond notes, "it is quite interesting how much we did at the beginning. We shot tests, played with colors we would use in the lighting, and took it all into the DI process [in prep], so that Rob — who is a colorist I trust implicitly — could help me mix these colors from the start. It was quite interesting how much footage we later took through the DI [in post] that already looked graded just from the LUT. We would try more contrast, or flatter, or warmer, or colder, or start messing with density or color, and finally we would sit back and decide it was actually great the way it was."

◀ TECHNICAL SPECS ▶

2.40:1

Digital Capture

Arri Alexa Studio, XT; Red Epic Dragon; Blackmagic Cinema, Pocket Cinema

Vantage Film Hawk V-Series, V-Lite, V-Plus; Angenieux Optimo; Cooke Mini S4; Zeiss Ultra 16



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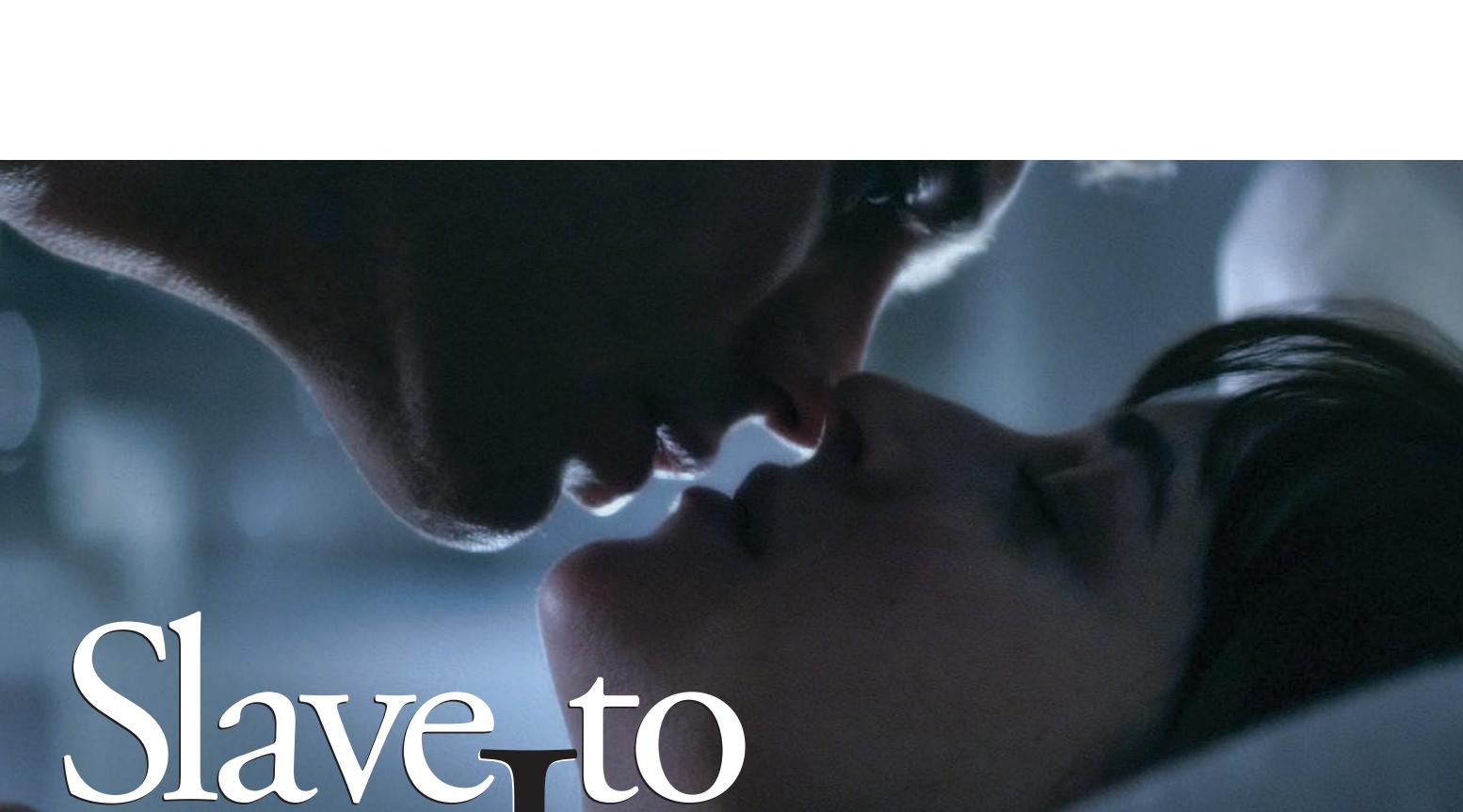
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Slave to Love

Seamus McGarvey, ASC, BSC
and director Sam Taylor-Johnson
bring the provocative novel
Fifty Shades of Grey to
the big screen.

By Mark Dillon

•|•

She is an innocent university student. He is a youthful captain of industry with unconventional tastes. It's clear from their first meeting they are destined for a romantic rendezvous, but the liaison will take them far beyond the pale, both physically and psychologically.

This premise sparks the hotly anticipated big-screen adaptation of E.L. James' erotic novel *Fifty Shades of Grey*, shot by Irish cinematographer Seamus McGarvey, ASC, BSC. The story begins as our heroine, Anastasia Steele (Dakota Johnson), steps in for college roommate Kate (Eloise Mumford) to interview eco-manufacturing magnate Christian Grey (Jamie Dornan) for the school's newspaper.

Ana finds him mysterious and intimidating — and undeniably attractive. Much to her surprise, she makes an impression on him.

Shortly after their initial meeting, Grey stops in at the hardware store where Ana works to pick up some supplies, and the flirtation begins. He courts her, all the while warning that he's trouble. She soon learns why: the rope and cable ties he purchases are part of his plan for their initial coupling in his Red Room. Grey engages only in dominant/submissive intimacy, and he thinks she will complement him well.

The unorthodox relationship he offers, spelled out in a quasi-legal document, is not what she'd anticipated from her first boyfriend, but she hesitantly agrees to give it a go. Each of the lovers then struggles to shape the other into an ideal mate.

British visual artist and filmmaker Sam Taylor-Johnson was tapped to direct the kinky drama, and she quickly reteamed with McGarvey, a longtime artistic partner who shot her feature debut, *Nowhere Boy* (AC Sept. '10), a drama about John Lennon's adolescence; her award-winning short *Love You More*; and 25 years' worth of her photographs and installations.

"She's my best friend and longest collaborator," says McGarvey, who spoke with AC from Los Angeles as he participated in the movie's color grading. "She's also a photog-



Opposite and this page, top and middle: Anastasia Steele (Dakota Johnson) gets tied up in a romantic liaison with eco-manufacturing magnate Christian Grey (Jamie Dornan) in the film adaptation of E.L. James' erotic novel *Fifty Shades of Grey*. Bottom: Cinematographer Seamus McGarvey, ASC, BSC frames the action.

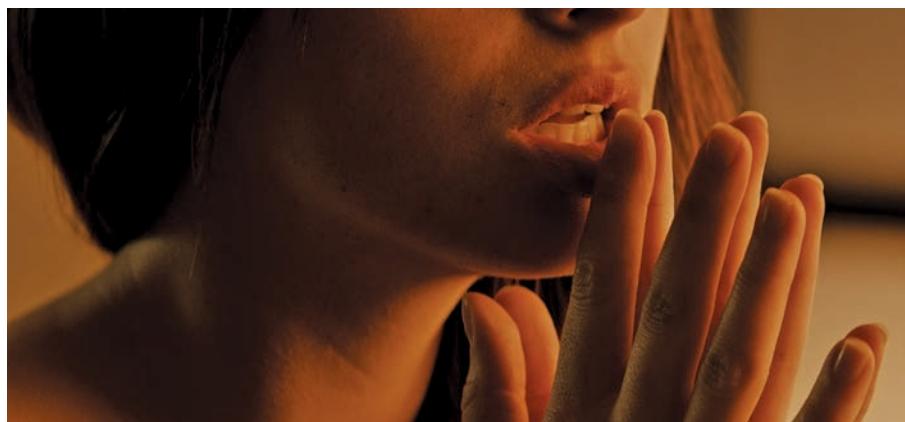
rapher, so she understands the lens and lighting. We've brought the same approach to this major motion picture that we have to smaller art pieces. I think the studio wanted us to come to it with artists' eyes."

Taylor-Johnson, speaking from New York with a week left in postproduction, adds that they communicate in shorthand. "I can say, 'You know that William Eggleston photograph?' and Seamus will say, 'I know exactly what you mean,' and compose or color something in the way we're both thinking. Also, his personality is alive and fun, and that lightness helps the atmosphere in the more difficult scenes we have to shoot."

The director was challenged to adapt a book that has not only become a pop-culture phenomenon, but also been criticized for being exploitative and glamorizing violence against women. The book holds back little in its graphic depiction of the many and diverse encounters between Ana and Christian, and while the movie doesn't shy away from nudity and extreme sexual situations, it does tone things down. The filmmakers approached the story as a sort of adult Grimms' fairy tale in which a dark prince whisks away a young woman.

"We shot it as far as we wanted to

Unit photography by Chuck Zlotnick, courtesy of Universal Pictures and Focus Features.



Slave to Love

Top and bottom: Steele, covering for her roommate, interviews Grey for her college newspaper. Middle: The crew readies the scene.

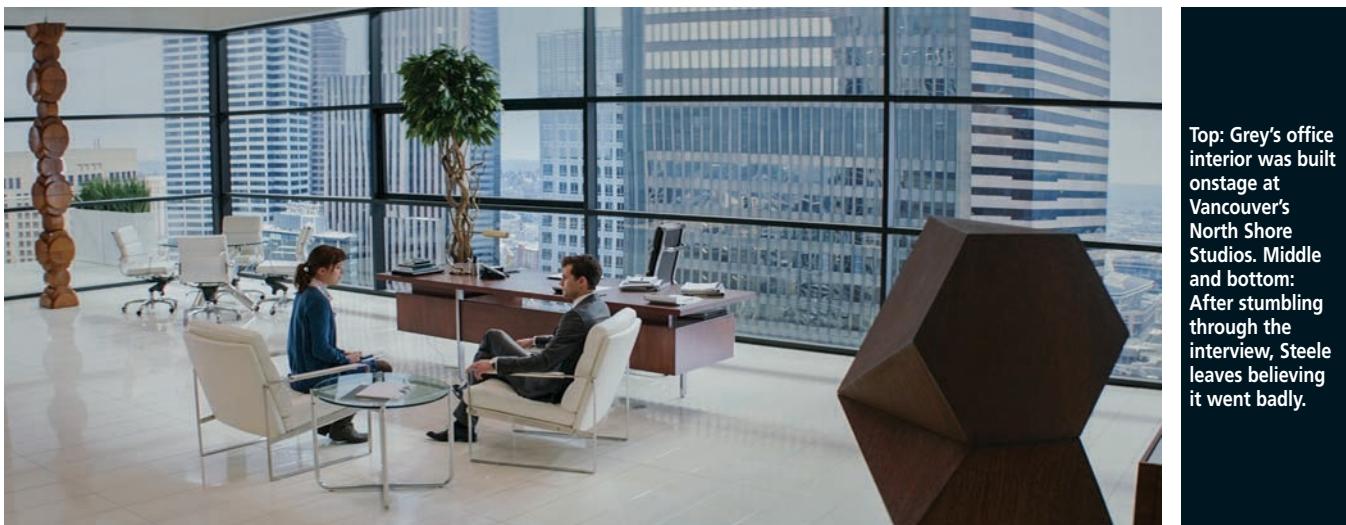


take it,” Taylor-Johnson says. “It wasn’t in my interest to be too graphic. For me, eroticism tends to be all over the minute you see too much. It was important for me that it be a journey of empowerment — that this girl goes on a sexual exploration that takes her to an unusual place she at first embraces, but then it changes and she gains the power.”

During eight weeks of preproduction, they screened films that pushed the sexual envelope, including *Last Tango in Paris*, shot by Vittorio Storaro, ASC, AIC, and *9½ Weeks*, shot by Peter Biziou, BSC. “The great tradition of San Fernando Valley porn cinematography wasn’t an influence,” McGarvey adds with a laugh.

But the filmmakers *were* influenced by the painterly urban photography of Saul Leiter. The cinematographer notes, “I love how he works with reflections, but also color — red in particular — and the way he interrupts the frame in the foreground with out-of-focus objects. It’s not consciously referenced in the movie, but it was a starting point.”

During prep, Taylor-Johnson worked on the script (written by Kelly Marcel) while McGarvey mapped out a basic shot list that could be adjusted on the day of shooting. The cameraman characterizes the movie’s look as distant from the lush features he’s made with director Joe Wright, including *Atonement* (AC Dec. ’07) and *Anna Karenina* (AC Dec. ’12) — both of



Top: Grey's office interior was built onstage at Vancouver's North Shore Studios. Middle and bottom: After stumbling through the interview, Steele leaves believing it went badly.

which earned him Academy Award nominations — and the forthcoming big-budget fantasy *Pan*. “It’s probably the most straightforward movie I’ve shot — but it had to be, because the content is so extreme. We were going for simplicity, leaving the complexity to the story’s erotic drama and charge.”

The movie follows a visual trajectory that opens in Christian’s desaturated world. Production designer David Wasco, set decorator Sandy Reynolds-Wasco and costume designer Mark Bridges collaborated on a monochromatic color palette that reflects the climate of the Pacific Northwest setting, as well as Christian’s surname. His environment encompasses black, white and many shades of gray, extending to his office, apartment, wardrobe, and even the outfits of his immaculate army of blonde employees. The introduction of Ana into his life brings color and then greater saturation as things heat up and they enter the Red Room.

McGarvey worked closely with the Wascos, who built light wells, architectural LED accent lights and other practical fixtures into the sets. “It’s lovely when you work with production designers who understand lighting and want to work with you,” he says. “It makes my job, and the director’s, much easier.”

Working on an estimated budget of \$40 million, the production rolled camera in December 2013 in Vancouver, where McGarvey had shot



Slave to Love

Top: Johnson preps for a close-up. Middle: Steele's roommate, Kate Kavanagh (Eloise Mumford), is by her side for a photo shoot with Grey. Bottom: Steele and Grey define their relationship.



Godzilla (AC June '14) earlier that year. The show wrapped in February after 49 days of principal photography.

The movie was shot on the Arri Alexa XT, marking Taylor-Johnson's first digital feature and McGarvey's third. "On *The Avengers* [AC June '12], I was coming to grips with digital cinematography," McGarvey says. "I was better able to deal with it on *Godzilla*. I felt in charge again. And on *Fifty Shades of Grey*, I was very happy with how I was able to control the image."

Digital capture, the cinematographer adds, seemed right for the material. "We wanted to depict Christian's environment in a cool, orderly and symmetrical way — a grain-free environment," he says.

"I love film," he notes, "but it's like hanging out with your granddad. Digital is more versatile. The director and I can see what we're shooting as we go, so it enhances our communication. Also, it gives me the chance to use lower levels of light but with less grain. We've got nude actors in compromising situations, and to be able to use hardly any light made them feel more comfortable."

Footage was captured in the ArriRaw 2.8K format to 512GB Codex Capture Drive XR mags. In front of the Alexa XT's 4:3 sensor, McGarvey used

the same set of Panavision C Series anamorphic prime lenses he used on *Godzilla*. “We would play with the distortions, such as flares, that are inherent in the glass,” he says. “They’re beautiful lenses that take the edge off digital cleanliness and give it more personality.” Pleased with the lenses’ inherent softness, he didn’t use diffusion filters — only 0.9 or 1.2 ND filters when shooting exteriors at 800 ASA.

The crew also used Panavision E Series 135mm and 180mm anamorphic primes for close-ups, and the 40-80mm T2.8 AWZ2 anamorphic wide-angle zoom for crane work and some sex scenes. Additionally, McGarvey sometimes positioned the camera further back and found the frame with the 70-200mm T3.5 ATZ anamorphic telephoto zoom.

The filmmakers strove to maximize the dramatic possibilities of the widescreen anamorphic format. “We wanted to work with the space between the characters, and extreme compositions,” McGarvey offers. “The aspect ratio allowed us to push the notion of symmetry and order.”

Most of the movie was shot on a dolly. Taylor-Johnson explains, “I feel that the whole film is about control, and it just wouldn’t work if there was any sense of an erratic nature. We had a very controlled environment and were governed by that.”

More than half the movie was shot onstage at North Shore Studios, which allowed for greater privacy for the highly intimate material. One of the biggest sets was Christian’s office, where the lovers first meet. Ana sits nervously, interviewing the outwardly self-confident tycoon, who starts off looking out his floor-to-ceiling windows, paces, sits at his desk, and then settles down beside her, his interest aroused.

The office set featured a Translight of the Seattle cityscape illuminated by Mole-Richardson 5K Skypan lights and situated 18' behind the 12'-high windows. A soft sunlight source was provided by Arri T12 lamps with Chimera Light Banks, which the



Top: With the Arri Alexa XT on a slider, the crew captures a scene outside a coffee shop. **Middle and bottom:** Steele's interest in Grey increases after the photo shoot and a coffee date.

Slave to Love



Top: The scene is set for a dinner in Grey's apartment.

Bottom: McGarvey tests an angle.



crew positioned as high as possible on motorized trusses to allow easy manipulation from the ground outside the set. Gaffer Stuart Haggerty extended the sun with Chimera strip banks containing 1K bulbs above the windows, while a pair of motorized 12'x12' soft boxes with 300-watt reflector floods and 500-watt EAL bulbs, suspended overhead, could be tilted for use as a soft key.

This left the crew little vertical space, and capturing the entire height of the windows in a natural sight line threatened to expose the studio floor beneath the Translight. To compensate — without incurring astronomical visual-effects fees — McGarvey applied a trick he learned from the late Jack Cardiff, BSC. The crew ran about 30 8'x4' mirrors at a slight angle against the base of the Translight, reflecting and thereby extending the image of the skyscrapers to increase their perceived depth. "It works very well," McGarvey testifies. "You don't notice it unless you scrutinize it, and it gave us an extra 3 to 4 feet."

Key grip Mike Kirilenko credits the art department with preparing smooth floors on the soundstages, allowing the crew to dolly around freely. Some sets, such as Christian's penthouse, required additional work. "[The penthouse] is a two-tiered environ-



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FEEL THE WONDER

Slave to Love



Top: After a bedroom romp, Steele wakes to find Grey at the piano. Bottom: McGarvey and director Sam Taylor-Johnson (far right) confer while Johnson and Dornan look on.

ment,” Kirilenko notes. “For shots in which we had to go from one level to the other, we had to build dance floor to meet the top level.”

In one nighttime penthouse scene, Ana, after a bedroom interlude with Christian, wakes to his playing a mournful tune at the piano and moves across the living room toward him. Moonlight was provided by 5K Mole Baby Seniors with $\frac{1}{2}$ Blue and $\frac{1}{4}$ Green gels positioned 180 degrees around the set, while 5K Mole Skypans behind the Translight created silhouette and contrast. Lowel Rifa lights were brought in for close-ups. The crew

dimmed the three overhead 12'x12' soft boxes and shut off some of the set's tungsten bulbs to create the desired ambience.

“The art department also had us put in beautiful hybrid LED strip lights [from Environmental Lights in San Diego] all around the apartment,” says Haggerty, who, like Kirilenko, had worked with McGarvey on *Godzilla*. “They glowed in nighttime scenes and gave a little background texture, such as linear lines of light on the staircase.”

Also in the kit were Cineo Lighting TruColor HS fixtures supplied by DPS in Burbank and the produc-

tion’s main rental supplier, PS Vancouver. These were used for a scene in which Christian takes Ana for a helicopter ride, a sequence filmed on a TV station’s roof. “I couldn’t get in a night light anywhere,” McGarvey recalls. “Instead, we used a ring of these TruColors as though they were landing lights. They’re high-output, phosphorescent-based lights that provide extremely accurate color temperature even when dimmed. They’re consistent even when used among other sources.”

The illusion of romance inevitably gives way to the Red Room, Christian’s private play space. The production sought to lend the set plenty of character with its meticulously designed dark-brown leather floor and silky, studded red walls. When giving Ana the tour, Christian flicks on a switch and the overhead light gradually comes up from eight 4'x4' 6.4K soft boxes with 300-watt RF and 500-watt EAL bulbs and four 4'x4' soft boxes with nine 1K nook fixtures. In keeping with Christian’s aesthetic, production designer Wasco supplied an acrylic wall backlit by four 5K Fresnels on pancakes through 12'x30' Light Grid. “That allowed us to photograph in silhouette and sidelight,” McGarvey notes. “It became a beautiful soft key. It was thematic but practical.”

The lights were mostly off the floor or outside the four-walled set,

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Top: Steele catches up with her mother, Carla May Wilks (Jennifer Ehle). Bottom: Taylor-Johnson, McGarvey and crew prepare to shoot the car interior.

allowing for unrestricted tracking shots as the room is explored from Ana's point of view and through over-the-shoulder shots, revealing a large brass rack with restraining cuffs, a four-poster bed, whips, ropes, canes and other accoutrements. Only for close-ups would lights be brought near the actors; these units included Lowel Rifa lights or a book light directed into bounce and diffused through 1/4 Grid, with 3'x4' hard honeycomb grids to direct the

light. "Keeping out the fixtures slightly compromises the lighting but works for the drama," the cinematographer says. "The actors feel they are in a real place rather than a set, and I think that makes a difference."

The crew used MR16 cyc strips diffused with Light Grid all around the top of the set to pick up the wall's studded pattern, and built in 80 MR16s as practical "puck lights" that provide background hotspots and accent the

room's various sexual paraphernalia, visible in inset cabinets and on hooks.

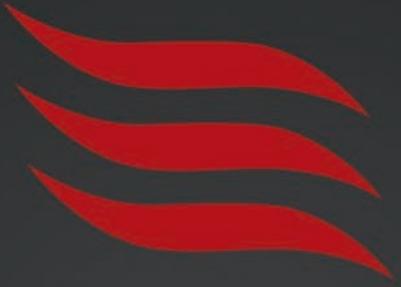
In a later Red Room scene, sharp overhead beams of ETC 575- and 750-watt Source Fours shine through lighting grids, creating a gobo effect on the floor. The rigging even appears on camera when the viewer sees the floor pattern shift; the scene cuts to a shot of Christian lowering one of the grids, to which he shackles Ana.

Taylor-Johnson and McGarvey saved the most sensitive scenes for the last couple of weeks of the shoot, when Johnson and Dornan were most comfortable. The director says, "We stripped it down to bare bones in terms of who needed to be around, and tried to keep a sense of intimacy — although that's difficult when we're all on set, staring at these naked people trying to convey something sexual."

McGarvey started off operating the A camera — as he usually does for Taylor-Johnson — with 1st AC Doug Lavender, while Norbert Kaluza manned the B camera with 1st AC David Lourie. But the two operators soon switched. "Norbert is a much better operator than I am," McGarvey concedes with a laugh. "We would shoot with two cameras side-by-side to minimize the number of setups and repetitions of scenes. We often used an OConnor 2575 head so we could react to the actors' movements. I'd be on the longer zoom, more searching and exploratory than Norbert's camera, which would be looser and wider."

Kirilenko explains that for some of the most intimate scenes, the crew mounted the camera on a dolly, a SuperTechno 15 crane or an Aerocrane Jib — used in conjunction with a Libra Head or Hot Gears remote system — "so we could move freely through the room and accomplish overhead or difficult angles without much time for changeover."

Regarding the Hot Gears/dolly combo, McGarvey adds, "It's great for working in small spaces. It allows your grips to be co-operators alongside you. I used it to allow [the camera to be] a



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Slave to Love



Grey invites Steele on a nighttime helicopter ride.

dispassionate eye in front of the actors. It's nice for them to not have an operator breathing inches from their faces."

The crew also used SuperTechno 30 and SuperTechno 50 cranes. The former was called upon to push in and track across and through the audience at Ana's university graduation ceremony, during which Kate gives a valedictorian speech and Christian appears as a guest speaker. Additionally, David Crone operated Steadicam for a few shots,

including a 360-degree dance in the penthouse in which Christian, clad in black, twirls Ana around after buying her a sexy, peach-colored dress before taking her to meet his family.

The movie dispenses with Ana's first-person narration — an indelible element of the book — but McGarvey believes the filmmakers found a cinematic equivalent through various techniques, including increased camera movement as the couple's relationship

intensifies, and decreased depth of field. "We were trying to find ways of photographing Ana's physical and psychological dilemmas in a subjective way," he explains. "It's about camera movement and point of view. At the start, the camera stands back, looking at the action from a distance. Then we get closer. It gets more charged as we get into it, and more subjective. It's quite simple, but sometimes that spare approach pays dividends."

McGarvey started off shooting mostly with 40mm and 50mm lenses, but in later scenes he shifted largely to longer lenses, including the 60mm. "That particular lens has nice flaring and great contrast," he says. "It's got color and a lovely little personality. It was our portrait lens for the sex scenes, because it's got a lovely close focus. Sometimes we'd use diopters with it, which would give the effect of a wide-angle close-up." The crew shot early scenes at deep stops, such as T5.6 and T8, for greater contrast and depth of field, but for the intimate bedroom and Red Room scenes, they shot wide open to create a soft, sensual look.

After wrapping principal photography, the production reconvened for five additional shooting days in October, but McGarvey was unavailable due to scheduling commitments on *Pan*. While Taylor-Johnson admits to

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Multiple cameras capture the graduation scene, during which Grey is one of the speakers.

initially feeling nervous without McGarvey on set as her “safety blanket,” ASC member Kramer Morgenthau (*Thor: The Dark World*) filled in admirably, working on opening shots of Christian dressing, some car shots and three dialogue scenes. “Kramer is a friend, and he shot everything beauti-

fully, but he was under strict instructions not to light more beautifully than I had!” McGarvey jokes.

Images were evaluated on set on a pair of Sony PVM OLED monitors and a Leader Waveform/Vectorscope monitor, calibrated in Rec 709 by dailies vendor Sixteen19. However, because

McGarvey operated for much of the shoot, and since Taylor-Johnson likes to stand by the camera, neither relied heavily on the monitors once the look was set up.

Another of McGarvey’s *Godzilla* collaborators, Brian Broz, functioned as the show’s primary digital-imaging technician, save for 10 days when he was covered by David Kurvers. Broz used the LiveGrade Pro system, which includes a color-decision-list grading mode, to apply a look-up table to the images output in Log C encoding. A baseline CDL was applied via Broz’s MacBook Pro with HD-SDI Ethernet cables running to each camera. CDLs were saved both in the Alexa XT and at the DIT station. “I evened out the color balance of the C Series lenses during lighting,” Broz says. “Seamus would come over just prior to shooting to quickly adjust the look before recording.”

During breaks, 2nd AC Adriene

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Wyse sent the XR mags and a USB stick, containing frame grabs and CDLs, to Sixteen19. Dailies were screened with 2K projection every day in a dedicated trailer. Avid DNxHD files were processed for editorial.

Three weeks of grading got underway in November at Technicolor Los Angeles, where McGarvey reunited with supervising digital colorist and ASC associate Steve Scott, whom he'd previously worked with on *Charlotte's Web*, *The Avengers* and *Godzilla*. Digital-intermediate producer Michael Dillon relates that the ArriRaw files were deBayered to DPX 10-bit using Colorfront Transkoder. Scott used Autodesk Flame Premium and Lustre on an HP Z820 workstation.

The colorist says that when they started the DI, the imported CDLs gave them a good starting point. "The shots were beautiful and the continuity was excellent," Scott relates. In his eyes,

the film's various looks incorporate the conflicting romanticism and realism of Christian's private life, epitomized by the Red Room, which has a harsher style. "We wanted to match the edgy, sensual energy that was inspiring their 'play' toward the end," he says. "That was about increasing contrast and saturation and using rotoscoping mattes to hold out one side of an actor's face or body to make the light streaming in look more starkly directional, which would give the impression of deeper, darker shadows."

Visually and thematically, *Fifty Shades of Grey* explores darker corners than most mainstream movies, but the book's popularity virtually assures that the project will garner massive attention. McGarvey admits that adapting a literary phenomenon was somewhat daunting. "You're always going to have some fans of the book thinking that the movie is a lesser version [of the story] than the one in their imaginations," he

says. "But Sam has a unique take on the epic in the everyday, and psychological states, particularly the feminine erotic imagination, and she's brought that [to the screen]. I'm very excited by it." ●

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Outside the Box

Three cinematographers discuss three very different television series.

By Debra Kaufman, Phil Rhodes and Iain Stasukovich

•|•

For this month's special focus on television production, we spotlight directors of photography Steven Fierberg, ASC (*The Affair*); Rory Taylor (*Doctor Who*); and PJ Dillon (*Vikings*).

The Affair (Showtime)

Cinematographer: Steven Fierberg, ASC

Showtime's series *The Affair*, which at press time had just received a Golden Globe for "Best Television Series – Drama," takes a nuanced look at the vagaries of the extramar-

ital relationship between Alison (Ruth Wilson) and Noah (Dominic West). The former is a waitress in a Hamptons café, married into a local family who has owned a ranch in Montauk for decades; she and her husband, Cole (Joshua Jackson), are trying to overcome the tragic death of their young son. Noah, a schoolteacher and novelist, has married into a wealthy family, but he often butts heads with his arrogant father-in-law, straining relations with his wife, Helen (Maura Tierney). They meet when Noah, Helen and their children are vacationing at Helen's parents' mansion and go for lunch at the café; Alison and Noah notice each other, and both feel a frisson of attraction. As they continue to run into each other in the small town, the two ignite an affair, opening a Pandora's box of lies, feuding families, drugs, trauma and murder.

Created by Hagai Levi and Sarah Treem, *The Affair* unfolds around an intriguing structure, in which each episode

is divided into two halves: One half depicts the events as told by Noah to a police investigator, and the other shows the same events as described by Alison. That Alison and Noah relate the same moments very differently — often radically so — deepens the narrative and makes the mystery surrounding the murder far more complex.

Mark Mylod, one of the show's executive producers, also served as director for the pilot, and he tapped Steven Fierberg, ASC to serve as cinematographer. Fierberg, who would stay on to shoot all 10 episodes of the first season, had previously worked with Mylod on the series *Once Upon a Time* and *Entourage* (AC July '05). "The advantage of working with a director you've had experience with is tremendous," says Fierberg. "We had a very short prep, but Mark and I were able to make decisions very quickly. He can say one sentence and it bespeaks a whole world to me. We're in sync because we've done it before together. Working with Mark is a great collaboration."

For *The Affair*'s visual style, Showtime suggested that the filmmakers reference John Cassavetes' films, and Mylod and Fierberg took the note to heart. "I would say his movie *Faces* is one of the 10 greatest films I've ever seen," says Fierberg. "It's wider-angle, right in the faces of the actors. Cassavetes' shots are extremely sophisticated and well done. The realistic lighting and 16mm grain has led people to unfairly overlook the incredibly effective visual storytelling and staging, but I am thrilled by it."

Fierberg and Mylod also had to consider if and how the images should underscore the show's structure, with its separation of Alison's story, Noah's story and, to a lesser degree, the point of view of the investigating detective (Victor Williams), who is usually seen near the end of each half. "Mark and I started with a discussion of what it means to be subjective," the cinematographer recalls. "I personally believe that subjectivity is established by proximity to a particular character. The camera has to be closer to that person than anyone else. In TV, you



Opposite (clockwise from top): Scenes from *Doctor Who*, *Vikings* and *The Affair*. This page, top: Detective Jeffries (Victor Williams) asks Noah (Dominic West) for his version of the events in the dramatic series *The Affair*. Bottom: Alison (Ruth Wilson) gives the detective her side of the story.

typically match the close-ups — there's symmetry. For shows that have an objective point of view, that's appropriate. But for a show like *The Affair*, which is subjective, the camera should be closer to the character whose point of view we're seeing.

"At one point, we talked about the possibility of having one person's story being handheld, but not the other's," Fierberg continues. "It's a strong way to differentiate, but we didn't feel it was right. It was too extreme and wouldn't serve the story." However,

► Outside the Box



Noah attacks Scotty (Colin Donnell) as Alison's husband, Cole (Joshua Jackson), pulls a gun.

Fierberg and Mylod did decide never to shoot the scenes from the detective's point of view with a handheld camera. "It was always on a tripod or a dolly, and the lenses were more extreme — very wide-angle lenses that we'd never use with the other two stories."

Fierberg shot *The Affair* with an Arri Alexa recording 2K ProRes 4:4:4 files that were later scaled down to HD for broadcast. The crew carried two camera bodies, but primarily shot "single-camera style," the cinematographer says.

"Film never came up [as an option], to be honest," Fierberg adds. Only months before, he and director Kevin Connolly did have the film-versus-digital conversation in regard to the feature *Dear Eleanor*; opting for the Alexa, Fierberg set about testing lenses, and Panavision executive Bob Harvey, an ASC associate member, suggested that he look at the company's PVintage Series, which are based on Panavision's Ultra Speed primes. Fierberg had used

Ultra Speeds years earlier and was happy to be reintroduced to them; he opted to use the PVintage lenses on both *Dear Eleanor* and *The Affair*. "Even though we're shooting with a digital camera, I wanted [*The Affair*] to have a feeling and humanity that is more easily achieved with film," the cinematographer says. "The PVintage lenses made *The Affair* look less digital than it might have. The image is very soft — even, to some extent, desaturated — and I think that's an essential part of the look."

Further fueling their conversation, Mylod and Fierberg also referenced the latter's work on *Entourage* and *Secretary* (AC April '02). "I thought a lot about *Secretary*," says Fierberg. "A huge portion of that movie was shot with a 32mm lens, and I wanted even a slightly wider angle for *The Affair*." The director and cinematographer talked about the impact of shooting close-ups in close proximity to the actors with a wider lens, as opposed to shooting from farther away with a longer focal length.

"There's a very different feel when you're shooting close-ups with the 32mm lens," Fierberg notes. "Although some people find the look of the longer-lens close-up to be more intimate, I believe that subconsciously, the audience is aware [when the camera is] closer to the actor. It creates a different impact."

On *The Affair*, Fierberg primarily used the 29mm, 40mm and 50mm lenses, relying on the latter two for close-ups. "Both of those lenses are so creamy and lush," he enthuses. "It's just ridiculous how great they make the faces look." On rare occasions, he used the 75mm to save time. "Shooting with prime lenses takes longer than shooting with zooms," he says. "But if you really want that creamy look, the only way to do it is to put on those old prime lenses. They slow you down, but they give you something you won't get any other way."

Typical for a television production, time was always of the essence, as each episode was shot in just eight days.



Top: Alison tries to comfort Cole.
Bottom:
Cinematographer Steven Fierberg, ASC (pointing) discusses a scene with Wilson.

And, Fierberg stresses, “it was eight days to produce 58 minutes, which is a big difference from 42 minutes.” *The Affair* was shot almost entirely in the state of New York, much of it in and around Montauk and the rest within the zone of New York City — particularly Brooklyn, where Noah and his family live. To avoid the huge summer crowds, the production shot in Montauk at the beginning and end of the season. “Mark and [director/executive producer] Jeffrey Reiner were very committed to really capturing the scale and scope of where we were,” says Fierberg. “Jeffrey knows the area, and he would take us to locations he knew specifically, such as Block Island.”

Rehearsal time was especially important, in large part due to the complexity of the script, which required that everyone always be aware of whose point of view each scene represented. “There’s a lot of depth in the writing,” Fierberg says. “Sometimes it references a scene we haven’t shot yet, or something that will become important three episodes later. So there was a need for very careful analysis of what was happening in a given scene.”



As a result of the dedicated rehearsal and blocking time on set, it wasn’t uncommon for Fierberg to shoot a scene in a single shot. “The scene might be rehearsed and figured out for an hour, and we might do a lot of takes, but then that’s it,” he explains. “Having very little coverage requires really knowing the scene and rehearsing until it’s great.” On an average day, he adds, the crew might not tackle many scenes, but the page count would be high — eight

to 10, and sometimes more. The cinematographer credits A-camera/Steadicam operator George Bianchini and camera operator Chris Hayes for their skill and ability, which helped to make this approach work.

With regard to his lighting, Fierberg reports that he was going for a look of “heightened realism” as well as sensuality. “It looks real and it doesn’t look ‘lit,’ but it is lit,” he says. “My cinematography should never call attention

► Outside the Box

to itself, and I hope it doesn't, but I certainly put a lot of effort into making the actors look their best.

"I'm a soft-light guy, especially with digital," he continues. "When I light directly, I'll push Blondes, Babies, Mini-Brutes or HMIs through 6-by-6 or 8-by-8 butterflies with Full Grid and Lighttools egg crates. For a smaller direct light, I use the Chimera medium Video Pro strip [bank] with the bare-bulb Triplet fixture and egg crate. When I bounce, I frequently tape or clip raw bleached muslin to walls or ceilings, and hit it with Tweenies, Blondes or Source Fours. For a small soft light in close proximity, I use either 2-by-2 or 'fat boy' [2-foot four-bank] Kino Flos with bleached muslin clipped on the front. And I will always light a night car scene with the exceptional LiteGear LED lighting kit." Fierberg notes that gaffer Scott Ramsey (whose company, Xeno Lights, supplied the lighting package) and key grip Gary Martone made all the difference to the production. "They're phenomenal and so creative," he says.

The "sensual" aspect of the show's visual style, Fierberg adds, helps create an emotional connection to what the characters experience. For example, he says, "Alison remembers her child jumping into the pool, or how the waves touched her feet." One technique the cinematographer employed was to undercrank the camera. "By playing with the frame rate, you can get something very poetic and not achievable any other way," he submits.

Fierberg says he's found *The Affair* to be "one of the most satisfying projects I've worked on. The writing is phenomenal. It's good because it's subtle; it doesn't hit you in the face. I love working with these great scripts and great actors. I always want to work on projects where the directing, writing and acting are all of one piece, so I'm very satisfied with what we're doing on this show. We've been able to achieve a style that's rare in television: to take the time to rehearse and stage, then shoot masters and not do coverage. I love that."

— Debra Kaufman



The Doctor (Peter Capaldi) arrives on the scene for the season-eight, two-part finale of the science-fiction series *Doctor Who*.

***Doctor Who* (BBC)**

Cinematographer: Rory Taylor

Since *Doctor Who* was first broadcast in 1963, the beloved BBC series has presented all manner of science-fiction-infused adventures headlined by its titular Doctor, the sole survivor of the alien but decidedly human-looking race of Time Lords. The Doctor and his companions travel through epochs and galaxies via the TARDIS (an acronym for Time and Relative Dimension in Space), a combination time machine/spaceship that appears, at least on the outside, to be an unassuming police box. It's "bigger on the inside," though, and allows the heroes to journey far and wide while battling foes of all stripes — and, inevitably, save the day.

Over the course of the Doctor's onscreen existence, tastes in television have changed almost as much as the technology used to produce it. Deftly managing these factors as they apply to *Doctor Who*'s camera department is a team of cinematographers, including New Zealand-born director of photography Rory Taylor, whose history on the

series includes 22 episodes going back to David Tennant's incumbency in the title role. Taylor notes, "Ernie Vincze, BSC was the original cinematographer I shared lighting [duties] with on *Doctor Who*. We alternated each filming block for four years, and discussed in detail the various lighting ideas required for each show. Working alongside Ernie was a wonderfully creative and aesthetically stimulating time."

Taylor's involvement in camera-work began in 1978 at the Swansea College of Art and Design. "I applied to every film school in Great Britain from my native New Zealand," he recounts. "From art college, I got a job as an assistant cameraman with the BBC Wales film unit in Cardiff." After traveling the world working on "all genres of programs: documentaries, sport, daytime TV, 2nd unit on dramas," Taylor advanced to the status of lighting cameraman in 1988 and subsequently worked on a variety of BBC network dramas, including *Berkeley Square* and *Insiders*. In 2000, he left the BBC for a freelance career, working on such series as *The Story of Tracy Beaker*, *Upstairs Downstairs* and *Casualty*, as well as

Doctor Who and its spinoffs *Torchwood* and *The Sarah Jane Adventures*. “Drama is my passion,” he asserts. “I love the skill and adventure of telling a story with a camera.”

Following a 16-year hiatus, *Doctor Who* was relaunched in 2005, and its recently completed eighth season starred Peter Capaldi as the Doctor. Taylor was behind the camera for the season’s two-part finale, which comprised the episodes “Dark Water” and “Death in Heaven.” Both episodes were written by executive producer Steven Moffat, produced by Peter Bennett (whose involvement in the series includes credits as both producer and 1st AD), and helmed by the series’ first American director, Rachel Talalay.

Given the history of the production, Taylor has come to expect esoteric demands. “Every episode has huge production values [with] greenscreen elements, stunts, explosions, chase sequences, prosthetics, monsters and enormous sets,” he says. The two-part finale was no exception. “Rachel and Peter wanted it to be fast-moving, scary, exciting and adventurous,” Taylor adds, noting that the script called for such environments as an active volcano; the “Nethersphere,” where people go when they die; the Unified Intelligence Taskforce’s equivalent of Air Force One; and glass tanks housing skeletons that would turn into the Doctor’s oldest nemeses, the Cybermen.

Since 2011, the BBC’s Roath Lock Studios in Cardiff has played home to *Doctor Who*, providing the stage space necessary for the show’s expansive — and diverse — sets. Taylor observes, “Every foreign world and alien planet in each episode is so different that, apart from the interior of the TARDIS, there is no in-house lighting style on *Doctor Who*.” Production designer Michael Pickwoad supplies scale drawings and design concepts, and then, Taylor explains, “after an in-depth discussion with [the director] about each scene on each set, I try to imagine the scenario — the shape of the light [and] whereabouts the scene might be played.” ➤



Top and middle: The Doctor encounters Missy (Michelle Gomez) and the Cybermen in the episode “Dark Water.” Bottom: Cinematographer Rory Taylor.

► Outside the Box



The next step is to draw up a formal plot for best boy Steve Slocum. "As much as possible," Taylor says, "I like to be involved in the installation of the lighting rigs. Once the construction of the set takes place, it's easier to see any potential lighting problems." To enable quick lighting adjustments, Taylor employs individually addressable dimming for every instru-

ment on the set, and he works with gaffer Mark Hutchings, "twiddling, fussing, and making sure everything is going to plan," the cinematographer says. He also emphasizes the importance of a second, ready-plotted backup option "to be put into use quickly whilst on the floor alongside the actors, if everything is *not* going to plan. That is paramount."

The volcano set for "Dark Water," Taylor relates, "was relatively simple. The key light element was a real flame bar kept just out of vision, with fireballs safely in shot. We used steam to amplify the heat and vapors, with red, orange and white Kino Flos at various distances from the actors, set slightly below their eyelines, to act as a fill light as if from the lava flow."

Additionally, Taylor explains, "300-watt and 500-watt tungsten Fresnels with Lee red gel filters were installed in the set and fed through lighting dimmers to give the effect of molten magma moving [beneath] the two actors." The resulting pools of light were slowly faded between 50 and 100 percent to simulate the changing heat source, and the molten rock itself was realized as a greenscreen element. Taylor also had a 4K space light rigged overhead with red gel, but "it wasn't needed," he says. "Since the Doctor's hair is predominantly gray, I had to be careful that in his close-up the mixture of colored lights didn't make it look too much as if he were performing in a pantomime."

Taylor adds that sound recordist Deian Humphreys "wasn't particularly impressed with all the extra noise [from

the fire effects], but as a previous *Doctor Who* director said, ‘It’s television, not telesound!’”

Elsewhere in the episode, Taylor explains, “the Doctor discovers a tower block full of skeletons, each one in its own tank full of fluid that we later realize is ‘dark water.’ The water eventually drains from the tanks, and as the skeletons come into contact with the air, they regenerate into Cybermen. All very terrifying, scary and wonderful!”

Ten tanks, each measuring 4'x4'x6', appear in the scene. For logistical reasons, as well as the safety of the actors in the tanks, the production decided early on not to fill the tanks with water, and so Taylor worked with the art department to create a convincing dry-for-wet effect. The solution involved a coat of sea-blue paint on the side walls of each tank, and a wrinkle-free opaque white silk stretched across the back to create “an illusion of emptiness behind the skeleton, so nobody had any idea of the depth of the tank,” Taylor notes. “It seemingly went on into infinity.”

When the tanks were meant to appear full, Taylor lit the silk with a 1K Fresnel gelled with Full CTB. Then, “when they were empty, I was able to alter the color to match the side walls, to sustain the illusion of the change in clarity. [When the tanks were full] I also covered the front glass panel with Lee Frost to degrade the apparent sharpness of the skeletons and give the impression they were submerged in fluid.” Taylor lit each skeleton from above with a 100-watt Dedolight focused on its skull. The last ingredient of the dry-for-wet recipe was an Acme LED Wave DMX water projector, set to a very slow speed.

Achieving the desired effect “took two 12-hour days of testing, much debating and a lot of research,” Taylor notes. “The dark water was the basis of the whole episode, so it was vitally important for [viewers] to believe what they were watching.” The final onscreen effect of water emptying from the tanks was created digitally, “much to my relief and disappointment,” says a somewhat

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► Outside the Box



The Cybermen make their way through the city.

rueful Taylor. “[It was] another thing I didn’t need to worry about, but it would have been fun trying to solve the problem.”

Another key set for “Dark Water” was the office of Dr. Chang (Andrew Leung). Taylor describes the environment as “typical *Doctor Who*. The character is a scientist, and his office was beautifully dressed with lavish props, wonderful practical lighting and opulent black sofas. But it was simply enormous: 56 feet by 40.” While the office shared elements of the water-tank set, with a single tank lit identically to the others, it was intended to look very different in the context of the narrative. “The art department concealed the tank with various screens, which I lit with small, colored LED lights. I specifically requested that the art department supply a white opaque-glass desktop, where I could hide [Litepanels 1x1 Bi-Color LED fixtures gelled with Lee #216 White Diffusion] underneath to act as a soft key source.”

Given such a large, enclosed set, Talalay had expressed a desire to shoot in 360 degrees. Accordingly, Taylor used another four space lights rigged over the

center of the room and “made sure the background had enough colored LEDs to give the feeling of opulent space,” he details. He also employed a single 1x1 Bi-Color as key, back or fill light, as necessary. Ultimately, the set’s fixture count ran to more than 200 lights, which were installed during a two-day pre-rig with a crew of five electricians. Taylor notes wryly, “The designer commented that we outdid Bond.”

The technical pedigree of *Doctor Who* goes back to some of the earliest television studio cameras, but these days the production carries two Arri Alexa Classics, which record ProRes 4:4:4 to 32GB and 64GB SxS Pro cards. The crew split the rushes at lunchtime and wrap, and supplied the files directly to the BBC’s on-site editorial department. (There was no digital-imaging technician.) The Alexas were paired with Arri/Zeiss Ultra Prime lenses, which were managed by 1st AC Jonathan Vidgen. Sets were lit to a T4, says Taylor, because “part of the character of the Doctor is that he very rarely stands still in one place for any length of time. [Also,] I never believe I should restrict where an actor wants to go.”

“I had a truck full of lights, from an Arri 18K to a 100-watt Dedolight kit,” the cinematographer continues. “Every light was used so much that I was nicknamed ‘Tipper Taylor’ by the electricians. I presume that’s a compliment, but you never know!”

Postproduction on the series is split between the BBC’s own facilities in Cardiff and Molinare in London. Colorist Gareth Spensley, working in collaboration with assistant Francois Kamffer, undertook color correction and some visual-effects duties on “Dark Water” and “Death in Heaven,” using FilmLight’s Baselight software. Each episode takes about two to four days to grade, Spensley explains, adding, “As a show it’s an absolute gift, because each week you’re setting up a new world. There are no rules. We can be doing Victorian London one week and an alien apocalypse the next.

“We do a lot of effects support work in the grade at Molinare,” Spensley continues. “That might encompass taking a main effects shot where it’s snowing, and we’ll add the snow in the close-ups, too.” Spensley is keen to emphasize the two-way collaboration between his facility and the BBC’s postproduction department. He continues, “A good example from ‘Death in Heaven’ involved the clouds over the graveyards. We were just asked to put a gray grad in, but we borrowed the textures that visual effects were building for the main cloud shots, and we tracked those into the majority of the graveyard scenes. I think we did 30 or 40 shots where we added roiling clouds.” Despite this additional complexity, Spensley enthuses, “it’s great fun. There’s tremendous creative freedom to keep the show looking fresh and exciting.”

Taylor concurs, and says he considers *Doctor Who* to be “unique in the fact that it’s a British institution, a series that is broadcast all over the world, with a fan base that covers every generation — and the challenges to the director of photography are enormous.”

— Phil Rhodes



Ragnar Lothbrok's brother, Rollo (Clive Standen, far left), joins forces with opposing leader Jarl Borg (Thorbjørn Harr, second from left) in the historical drama *Vikings*.

Vikings (History)

Cinematographer: PJ Dillon

Photographed by PJ Dillon, History Channel's *Vikings* brings to life the ancient Nordic sagas of medieval Scandinavia. The show focuses on the famous Danish chieftain and former farmer Ragnar Lothbrok (Travis Fimmel), his family, and his legendary raids upon England and mainland Europe. Season one sees him commanding a new generation of fast longships on raids into North East England. In season two, Ragnar grows in power and influence as alliances within his circle shift, and forces conspire against him.

Years before going behind the camera for *Vikings'* second and third seasons, Irish-born Dillon worked his way up through the camera-department ranks, starting out as a trainee in Ireland before spending a few years as a camera assistant in the United States. He shot his first feature in New Hampshire in 2000, the independent *Something Sweet*, while still assisting on bigger shows. "I learned the craft from working with other people, and applied that to what I was shooting myself," says Dillon.

Since then, Dillon has added

Primeval, *Game of Thrones* (AC May '12) and *Penny Dreadful* to his cinematography credits. In 2012, he was back in Ireland shooting the British series *Ripper Street* when he got the call from *Vikings* to join the crew as second-unit director of photography. "They have one cinematographer who does the whole series, but there's quite a lot of crossover days and a lot of second-unit work," Dillon explains. "At the time, the main-unit cinematographer was John Bartley [ASC], and he was very generous in terms of sharing his knowledge with me. When season two came around and he wasn't available, the producers asked me to step up."

In season one of *Vikings*, Bartley and director Johan Renck developed a desaturated look for the show that emphasized contrast and largely excluded blues and greens from its color palette. "When I came on board in season two, the general feeling was that the look of the show was great and well received by the fans and critics, and we wanted to develop it further," Dillon recalls. "People kept talking about the 'punk rock' aesthetic they wanted to maintain. I met with showrunner Michael Hirst, production designer [for seasons one and two] Tom Conroy,

costume designer Joan Bergin, the producers, and [director] Ciaran Donnelly, to discuss what really worked in season one and what could change without compromising the established look."

One of Dillon's first changes was the introduction of blue and green into the show's color palette. "It was important because sometimes the script would describe a scene in Wessex, in England, as green and verdant compared to Scandinavia, and we had to reflect that," he notes.

His other significant contribution to the look of the show was his use of diffusion filters — 1/8, 1/4 and 1/2 Tiffen Black Pro Mists, favoring the 1/4 — and a more frequent application of soft light. "I felt that some halation in the windows would add to the look that John had established," he says, adding that "there was quite a lot of hard light used in season one, and I wanted to soften that a little."

According to Dillon, there are no hard and fast rules as to what the show should look like. There are established guidelines — such as favoring primes and avoiding zoom shots — but the show's producers and executives tend to allow for the application of a director's personal aesthetic, "and as the cinematographer, I want to respect that," says Dillon. "For instance, some like to use a lot of handheld while some don't like it at all. We're lucky to have two very intuitive operators, Iain Baird on A camera and László Bille on B, who tend to develop relationships with the directors quite quickly."

Since season one, *Vikings* has used Arri Alexa cameras with Panavision Primo SL lenses provided by Panavision Ireland at Ardmore Studios just outside of Dublin. (Panavision's Kevin Greene provides technical support to the production.) For season two, the camera crew carried two full sets of Primo primes, a pair of 11:1 (24–275mm T2.8) Primo zooms, and a 3:1 (135–420mm T2.8) Primo zoom, the latter of which was primarily used for covering large-scale battle scenes. ➤

► Outside the Box

Top: King Ecbert (Linus Roache) talks strategy. Bottom: Ecbert welcomes Princess Kwenthirth of Mercia (Amy Bailey) to his court.



Working with the Alexa XT and its 4:3 sensor, Dillon also incorporated the use of Panavision Primo anamorphic lenses, using them for standalone scenes, such as dream sequences and "moments of great import, just to add a different sort of texture," he points out. "We'd maintain a 1.78:1 aspect ratio and crop left and right."

After working with the Alexa Plus for season two, the production carried four Alexa XT camera packages for season three. The main unit gener-

ally shoots with two cameras, though days with crowd scenes may call for three, and battle sequences tend to shoot with all four.

Production for an entire season is divided into five 20-day blocks, and each episode shoots for 10 days, with some crossover days in each block for second-unit cinematographer James Mather. Depending on the content of each episode, this can bring the total number of shooting days up to 22-25 days per block.

Dillon calls special attention to the show's daily schedule: a strict 10-hour continuous day, with no lunch break, that rarely goes into overtime. "Many of our directors who are used to working in the U.S. and Canada find this a bit of a culture shock given the extended shooting days they're accustomed to, but most come to really like the system," Dillon muses. "In practical terms, it means the production crew gets to have a life outside of work, and that has a huge knock-on benefit in terms of morale over the course of an extended shoot."

Vikings also adheres to the European crew structure. "Electrics do all the flagging and bouncing, and grips are concerned with camera placement and support only," says Dillon. "Our key grip, Phillip Murphy, regularly puts a GF-8 crane with a remote head onto a boat so we can do crane shots of long-boats on the water. Or we'll rig them to the sides of mountains. On a television budget, these are serious undertakings that Phillip accepts without batting an eye."

The first season of *Vikings* was set mostly in Scandinavia with the occa-

sional foray to the British Isles. The second season saw more action in Wessex, and Dillon wanted the cinematography to reflect the differences between the two lands: England is warmer and more saturated, while the Scandinavian landscape is cooler and less saturated, with more contrast.

Everything is filmed in Wicklow, just south of Dublin, with the exception of the occasional stock-footage shot or a plate filmed on location in Norway by the visual-effects unit. "We have the sea, mountains and farmland all within 20 minutes of the studio," Dillon observes. That being said, "Irish weather is pretty idiosyncratic," he adds. "You can get four seasons in one day, and often do. So if we've scheduled for sunshine and it rains all day then we just have to make it a rain scene. You can't fight the weather."

Whenever possible, Dillon prefers tungsten units to HMIs, even when filming exteriors. "That might be a form of insanity on my part," he concedes, "but the tungsten lamps just offer a different quality of light. It's not so electronic." The production employs 20K Fresnels with specially designed soft boxes built by gaffer Terry Mulligan. Backlight for large locations is supplied by 4' Kino Flo Celeb 400 DMX LED units with dimming and color temperature controlled remotely by Dillon from an iPad running Interactive Technologies' CuePad.

Interior key light is often provided through the windows and reflected off the floor or wall. Larger sources enter the room from a steep angle, casting a hard light focused away from the actors. For the rare occasion when an actor does receive direct illumination, it's through a layer of Lee Lux 400 diffusion. "If I want to boost that I'll use 5-foot square soft boxes, with incandescent bulbs from 100 watts up to 500 watts, depending on the size of the box, behind a layer of Lee Full Grid and at least one layer of Lux 400 maybe a foot away from it, and then maybe another [layer of Lux 400] a couple of feet away from that, so that by the time they hit the actor all of the direction has been knocked out of them," says Dillon. ➤



A dark promotional graphic for Duclos Lenses. At the top is a stylized white icon of a camera lens. Below it is the company name 'DUCLOS LENSES' in a large, serif font. At the bottom, the text 'PROFESSIONAL CINEMA LENSES', 'SALES • SERVICE • SUPPORT', and the website 'WWW.DUCLOSLENSES.COM' are displayed in a smaller, sans-serif font.

► Outside the Box

Cinematographer
PJ Dillon
measures the
light on set.



Overall, Dillon considers his approach to lighting *Vikings* to be "quite stylized, though we tend to have it motivated and looking as natural as possible. Like for flame, we tend to use flame bars and candles rather than replicate it with artificial sources."

For the season-two episode

"Blood Eagle" — for which Dillon received an ASC Award nomination — director Kari Skogland wanted to shoot the climactic execution of Jarl Borg (Thorbjørn Harr) using flames as the only light source. The special-effects department, led by supervisor Paul Byrne, rigged gas-powered torches for

all the off- and on-camera sources, giving Dillon complete control over their intensity. "Our electricians had almost nothing to do that night except stand back and observe," says Dillon.

Once the flames were positioned, all that remained was to sort out the coverage of the gory "blood eagle" ceremony, which according to Nordic legend was performed by slicing open the skin of the victim's back, breaking their ribs apart so they resemble blood-stained wings, and then pulling the victim's lungs out through the wounds. "There were a lot of restrictions as to what we could and could not show," Dillon remarks. "In fact, very little gore is ever seen in *Vikings*. It's often intimated but rarely ever seen."

The entire scene was shot over the course of a single night using a 50mm T1.0 PVintage prime on the A camera, which lived on the Steadicam with Baird operating. "It was a focus puller's nightmare," Dillon recollects, "but our A-

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camera focus puller, Alan Butler, did an amazing job. We were able to use everything." With the lens set to T1.0 and the camera at ISO 800, Dillon was able to shoot at 96 fps to lend the action a more poetic style. Bille operated the B camera with standard Primos — filming at 48 and 24 fps to compensate for the 1-stop speed difference between the SL primes and 50mm PV — and captured reactions and expressive details with the help of a Lensbaby and what Dillon calls "funky filters."

"I went to a glazier and got pieces of distorted glass cut to 4-by-5.6, then had ellipses, triangles, and circles cut into them with a water cutter," the cinematographer describes. "You can set up a shot and use one of the filters to keep someone's face sharp and have the rest of the frame fall off."

Seasons two and three of *Vikings* were captured at 1920x1080 ProRes 4:4:4, with ArriRaw occasionally used for visual-effects plates. Season three

saw the addition of the Alexa XT Plus with Codex capture drives and an increased reliability on ArriRaw for visual-effects work.

On set, Dillon uses Pomfort's LiveGrade to modify the look-up tables built in prep with DIT Aislinn McDonald. "You can get quite different conditions from day to day, and if you're shooting a battle sequence over the course of a couple days, you have to try to make it match," Dillon explains. "I have low-contrast LUTs built for high-contrast days, and high-contrast LUTs for low-contrast days. Sometimes I'll even tweak a look during the shot, but otherwise I'll just call the adjustments from shot to shot."

LUTs for each episode are delivered to dailies colorist Chris Wallace at Deluxe Toronto. For season two, Dillon was able to supervise the grading of the first two episodes from Deluxe London via Skype and Streambox. For season three, Dillon traveled to Toronto to

supervise the first four episodes with Wallace in person. "Our feeling was that after I've been in the room with him for a few days, I can send specific notes and know he'll execute them to the letter," says Dillon, who supervised the remainder of season three's dailies remotely from Ireland.

Season three sees Ragnar and his forces move beyond England to conquer sunnier climes on the European mainland. "In anticipation of this we're gradually taking the look of the show toward more saturation and slightly less contrast," says Dillon. With the Viking hordes closing in on a prosperous French city — as the season culminates with the Siege of Paris — the production and costume design become more refined and saturated, "and as the narrative becomes more cultured, we're reflecting that in the photography."

— Iain Stasukevich



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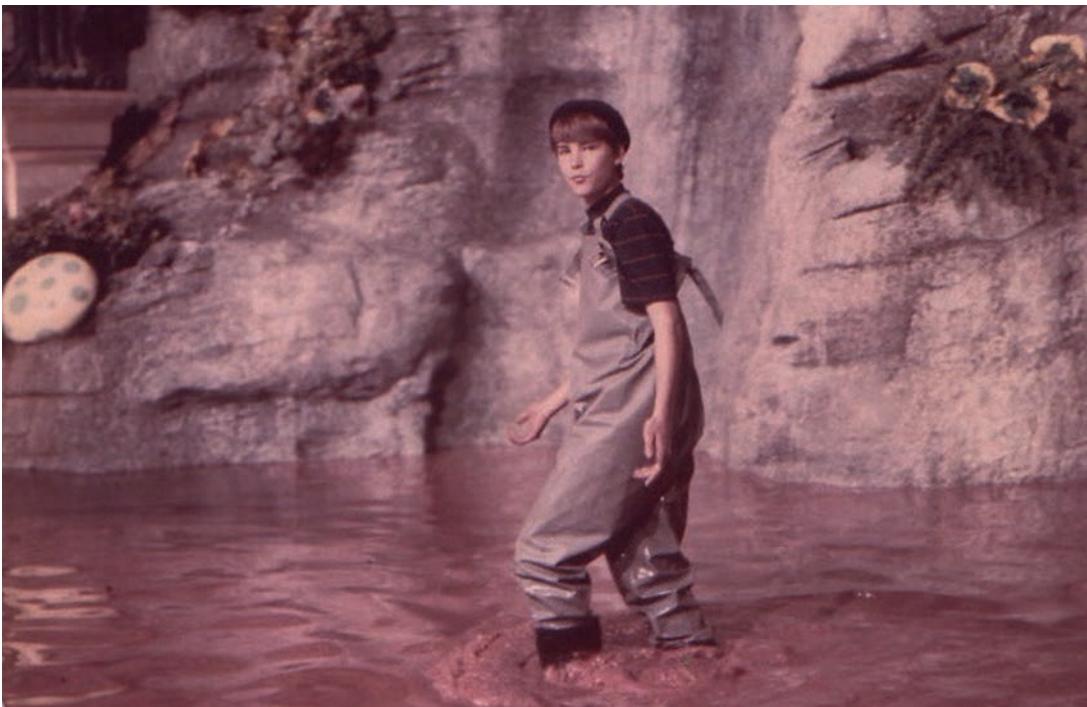


Feeling the Light

The Society fêtes Bill Roe, ASC with its Career Achievement in Television Award.

By Jean Oppenheimer

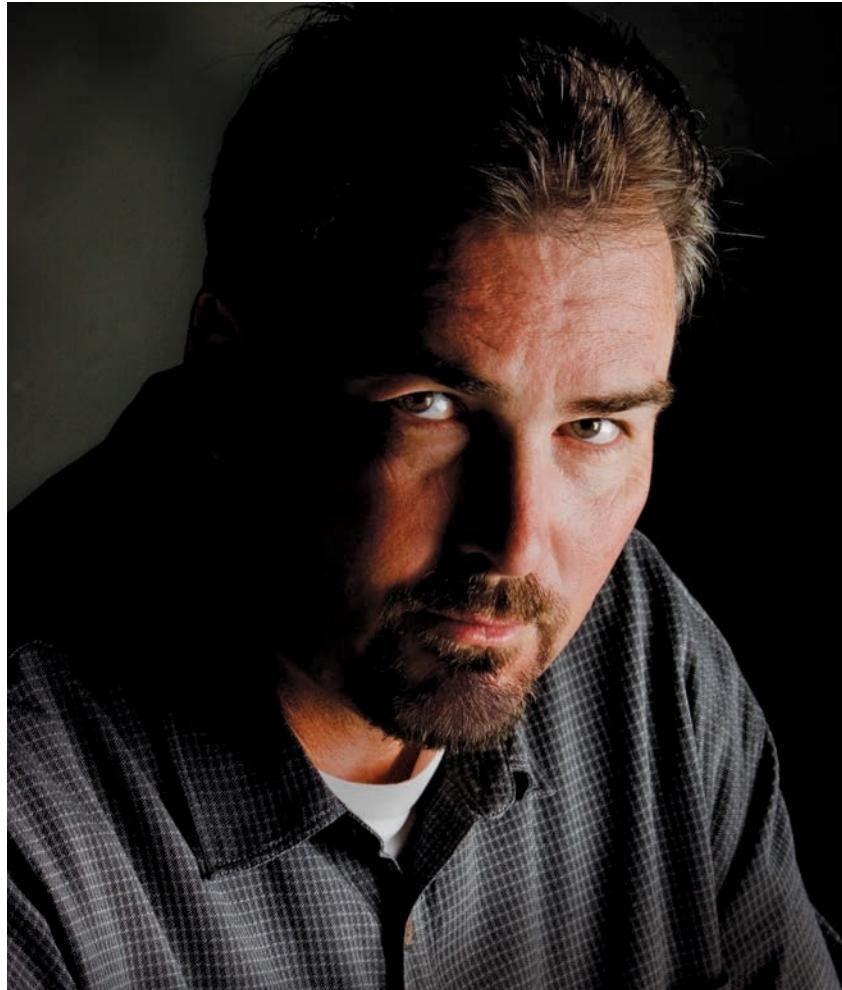
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Opposite: Bill Roe, ASC sets up a shot. This page, top: Roe's first unofficial production-assistant job, cleaning the chocolate river on *Willy Wonka & the Chocolate Factory*. Bottom: A portrait of Roe taken by Owen Roizman, ASC.

Bill Roe, ASC, recipient of the American Society of Cinematographers' 2014 Career Achievement in Television Award, makes no bones about how he got his start in the entertainment business. "Nepotism," he says, relating that his father, Jack Roe, was a 1st AD and production manager on such films as *Paint Your Wagon*, *Monte Walsh* (1970) and *The Bad News Bears* (1976). Growing up, Bill and his two younger brothers, Bob and Tim — currently 1st AD on *Community* and 2nd AC on *Castle*, respectively — spent many summers on location. Bill was 8 when his family moved to the island of Oahu, where his father worked on *Hawaii*, and at 14, Bill was in Munich "cleaning the chocolate river," he recounts, as an unofficial production assistant on *Willy Wonka & the Chocolate Factory*.

Growing up, though, Roe's real passion was for sports. "I wanted to play professional baseball or football," he says. "To me, being on a set was a summer job." But high school and college athletics took a toll on his body, and he wisely maintained his ties to the industry. "I was at Los Angeles Valley College, and I would finish classes at



► Feeling the Light



Top left: Roe (behind camera) operates for Owen Roizman, ASC (far right) on *Wyatt Earp*.

Top right: Roe works with Kevin Costner on the same production. Bottom: On the set of *Walk Like a Man* with (clockwise from left) Victor J. Kemper, ASC; Larry Hezzelwood; Roe; Tracy Langan; Phil Radin; and Howie Mandel.

noon, then drive over to Warner Bros., sneak on the lot — in those days you could just wave and walk into the studio like you belonged there — and help out in the loading department.”

His first official job was as a loader on 1978's *Sgt. Peppers' Lonely Hearts Club Band*, shot by Owen Roizman, ASC. “I always tried to find people whose personalities I thought I would enjoy, and I liked Bill right away,” Roizman recalls. “I liked his personality,

his work ethic. He was smart and very dedicated to what he was doing.”

Roe was put on salary as a 2nd AC. “They paid me for 30 days, so when the production company became [a union] signatory, I got grandfathered in with the company,” he says. “My dad, however, made me pay back those 30 days to the company [because] they were paying me as a camera assistant when I was really just a loader.” Indeed, the elder Roe’s attitude toward his job

rubbed off on his sons. Bill notes, “Dad was a working-class guy. He worked 10 months a year, every single day, and he instilled that work ethic in me and my brothers: to be dedicated, to enjoy what you do and, obviously, to be good at what you do.”

Early in his career, Roe also had the opportunity to work with Victor J. Kemper, ASC, who promoted him from 2nd to 1st AC on *Cloak & Dagger*, and then to operator on *Hot to Trot*. As with Roizman, it was Roe’s personality that first grabbed Kemper’s attention. “I felt he was very much like me,” Kemper recalls. “His personality was happy; I never saw him upset or angry. There was never a problem, no matter what we needed. On top of that, he was always looking forward, looking to make things better.”

As an operator, Roe collaborated on a number of projects with Michael Chapman, ASC, including *Primal Fear* (1996) and *Space Jam*. “Bill was a superb operator,” Chapman enthuses, and like Kemper, he adds, “as soon as I met Bill, I liked him. He’s just one of the good guys.”

In 1994, Roe again teamed with Roizman, this time as camera operator on *Wyatt Earp*. “His work was phenomenal,” Roizman states unequivocally. “I could tell right then that he would be a top director of photography one day.” Told that Roe considers him a

mentor, Roizman laughs. "I think one of the reasons is because he found out when we did *Wyatt Earp* that I could beat him at golf. I used to clean his clock when it came to golf — and I have never let him forget it!"

As all of Roe's colleagues who spoke with *AC* are quick to note, family life is one of the cinematographer's highest priorities. Asked to name the best decision he has ever made, Roe doesn't hesitate: "Kathy," he says, singling out his wife. The two met when they were 15 but didn't really start dating until after high school. They married in 1982, had three children — Kelly, Mike and Taylor — and now have a grandson, James William, the

"Bill has always been courageous, bold and talented, and his attitude is very 'can do.'"



Top: Hezzelwood and Roe set up the camera on the set of *The Lost Boys*. Middle (from left): Cinematographer Oliver Wood, director Renny Harlin, Roe and 1st AC Kenny Nishino on the set of *Die Hard 2*. Bottom: Wood and Roe on location for *The Adventures of Ford Fairlane*.



apple of his grandfather's eye. "I always liked when Billy brought Kathy and their kids around," says Roizman. "They are such a great family."

Michael Watkins, ASC, another of Roe's mentors, adds, "A lot of relationships in this business tend to be transient in nature. Jobs shift, you go somewhere else and meet new people, and it's hard to keep up the old friendships. But Bill and Kathy make an effort to keep their friends. They invite you into an intimacy you rarely find."

"Kathy is Billy's secret weapon," says *The X-Files* creator Chris Carter, who hired Roe as director of photography when the popular television series moved from Vancouver to Los Angeles. Tina Ameduri, who has handled craft services on *The X-Files*

► Feeling the Light



Top: Roe operates the camera for a scene with Kevin Kline and Sigourney Weaver in *Dave*. Middle: Roe with Michael Jordan and director Joe Pytka on the set of *Space Jam*. Bottom: Roe with actor/director David Duchovny on *The X-Files*.



and almost every show Roe has shot since, seconds that assessment: "Kathy would come to the set, bring the kids, bake cookies and take time out of her life to get to know us all. She is definitely his rock."

The X-Files was a turning point for everybody connected with the show, and its visual style helped redefine what a television series could look like. Rob Bowman, who served as both a director and producer on the breakthrough series, notes, "The first *X-Files* episode Bill and I did together ['Drive'] won the ASC Award for Outstanding Achievement in Cinematography in a Regular Series." Roe picked up a second ASC Award the following year for another episode of *The X-Files*, "Agua Mala," and has been nominated an additional seven times: three more for *The X-Files*, once apiece for *Las Vegas* and the telefilm *Faith of My Fathers*, and twice for *Day Break*. He has also received three Emmy nominations.

Roe credits Bowman with teaching him about "feeling light" and encouraging him to not be afraid of the dark. Bowman, who most recently has collaborated with Roe on the series *Castle*, asserts, "A director can say all sorts of crazy things, but if the cameraman can't interpret it or make it into an image, you're nowhere. Bill has always been courageous, bold and talented, and his attitude is very 'can do.' You'll ask something and Bill will say, 'Sure, let's do it.'"

Chris Carter laughs as he recalls, "My favorite word out of Bill's mouth was 'Okay.' You'd ask, 'Can you do this?' and [his response] was always 'Okay.'"

Roe shot the first episode that *X-Files* star David Duchovny ever directed. Duchovny recalls, "Whenever I'd say some kind of shot — who knew if it was even doable, because I didn't know what the hell I was talking about — Bill would say, 'Yeah, it'll be great. It'll be great.'" The actor/director adds that he has never seen Roe lose that enthusiasm — or his temper — not even on the golf course. "You can be in

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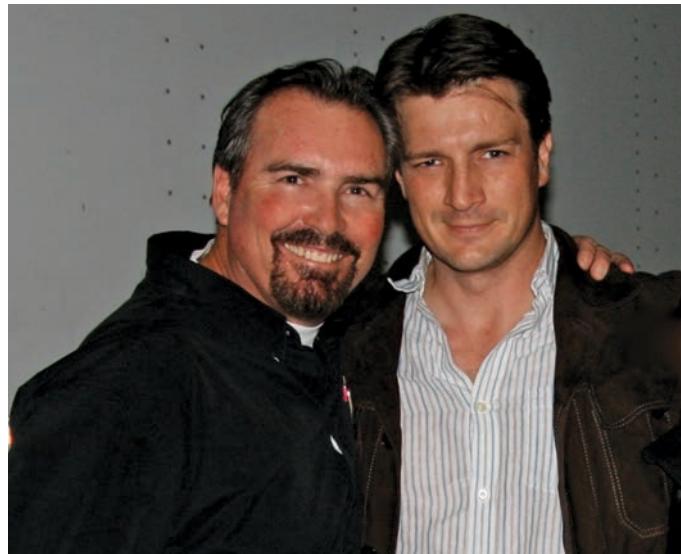
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Top: Producer/director Rob Bowman (left) and show creator Andrew W. Marlowe (right) surprise Roe on his birthday by bringing the USC Marching Band onto the set of *Castle*. Middle: Roe with *Castle* actor Nathan Fillion. Bottom: Roe takes on the role of director on the set of *Castle* with actors Charles Shaughnessy and Stana Katic.



the woods and tell Bill, 'I'm going to use this iron and try to curve it around that tree over there,' and Bill will say, 'It'll be great. It'll be great!'

David Nutter's relationship with Roe started in 2007, when the director was asked to bring a blockbuster franchise to television with the series *Terminator: The Sarah Connor Chronicles*. "The first and only cinematographer I went after was Bill Roe," Nutter insists. The two men had never met, but Nutter had directed several *X-Files* episodes when the program was shooting in Vancouver. "It was still a somewhat manageable series then," he comments. "When it came to L.A. it just exploded in scope. I found myself watching it and asking, 'How did they do that? Who is the wizard behind the curtain?' I discovered it was Bill Roe and his amazingly talented team. Fortunately for me, I caught Bill between projects, and now we've hooked up for three pilots and a lifetime of friendship."

According to Nathan Fillion, who plays the title role in *Castle*, which Roe has shot for the past seven seasons, "Bill is a very modest guy. He likes to keep a low profile." Except, perhaps, when it comes to his beloved USC football team. In fact, Roe's continued passion for sports provides a constant source of teasing among his colleagues. "If USC wins, we know it's going to be a great day on the set," jokes Fillion. "If



Top: Roe on set with *The X-Files* creator Chris Carter. Bottom: Roe with Bowman.



they lose, well, maybe it's not the best day to bug Bill." (The first season *Castle* was on the air, Bowman and show creator Andrew W. Marlowe decided to surprise Roe on his birthday by hiring the USC Trojan Marching Band to burst onto the set in the middle of filming. Suffice it to say, it was the perfect gift.)

Stana Katic, Fillion's co-headliner on *Castle*, observes that Roe is very close to and protective of his crew. "It extends beyond the traditional boundaries of most cinematographers," she says. Tim Roe, who has worked on and off with his older brother for 20 years, agrees: "Bill is very caring toward his crew, both

at and outside of work."

One of the things key grip Tony Sepian most admires about Roe is his patience. "He is very fair to the people he works with in every department," Sepian observes. Camera operator Stephen Collins adds, "Bill knows how to find the strengths in people and put together a great team." Colorist Tony Smith rattles off a list of adjectives to describe Roe: "affable, kind, approachable, pragmatic, incredibly creative."

Gaffer Jono Kouzouyan is Roe's longest-standing collaborator, having reported alongside him to Chapman on *Primal Fear*. "In a very quiet manner, Bill takes charge of what needs to be

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► Feeling the Light



Roe on location for the feature *The X-Files: I Want to Believe*.

done," Kouzouyan says. "His attitude is, 'Whatever is given to you, take it and be the best at it.' And that's what he has done."

With *Castle*, Roe has also branched into directing. "I had the

chance to witness Bill say 'action' as a director for the first time," says fellow ASC member Daryn Okada, who stepped in as cinematographer for Roe's directorial debut. "It was an opportunity to support my friend on the set as he

began to expand his talents. Rarely does one ASC member get the chance to observe another at work, but I've had the chance to watch Bill do what he does best — tell the story visually — setup after setup. He is an artist who does not sit still; he is always pushing himself, and he inspires his crew to help realize his creative vision by cheering for them and keeping their energy up. He's not unlike a football coach in the playoffs. Every shot has got to be a touchdown."

When ASC President Richard Crudo informed Roe of the ASC Award, the cinematographer was speechless — and then he immediately called his wife. "I started crying," confesses Kathy. "It was so unexpected." Roe credits his success to "being at the right place at the right time" and working with people like Watkins and Roizman, "who were so generous about sharing information with me."

Roe also acknowledges director Joe Pytka, whom he met while operat-

Know Means YES

DIGITAL TIME
1999-2099
HOURS-MINUTES SECONDS
YEAR-MONTH-DATE-DAY
WEEK NUMBER, DAY OF YEAR
ALARM W/SNOOZE
AUTO-ADJUST FOR DST
LATITUDE/LONGITUDE
582 PRE-SET CITIES
TIME DIFFERENCE, LALTIME
99 MINUTE TIMER
ALARM W/SNOOZE
times for:
-SOLAR RISE
-SOLAR HIGH NOON
-SUN SET
SUN RISE ALARM
times for:
-MOON RISE
-MOON SET
% LUNAR ILLUMINATION
times for:
-NEXT NEW MOON
-NEXT FULL MOON
PAST/FUTURE DATE CALCULATOR
COUNT DOWN/UP

LCD RING
MOON RISE/SET
ALTERNATE CITY SR/SS

SUNSET

MOON PHASE

MOON RISE

TITANIUM CASE
TITANIUM SAPPHIRE CRYSTAL

SUN STONE

24 HOUR ROTATING BEZEL

12 NOON

MOON SET

12 HOUR DAY/NIGHT INDICATION

AM/PM DIAL
ALTERNATE 24 HOUR DIAL

SUNRISE

24 HOUR HAND LUMINESCENT TIP

12 MIDNIGHT

MOON STONE

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ing on *Space Jam*. As director and cinematographer, Pytka and Roe's first project was the Grammy-winning video for the Beatles song "Free as a Bird" in 1997. That same year, a commercial Pytka and Roe made for HBO — shot at Jane Goodall's wildlife preserve in Africa — picked up an Emmy, the first commercial ever to be so distinguished.

According to Roe, Pytka has been "a huge influence on how I shoot things. He's brilliant. He's always thinking outside the box." And Pytka couldn't be happier for his friend. "I am so excited for Billy's success. He deserves it because he did it through his integrity, his honesty and his talent." Larry Hezzelwood, vice president of marketing at Panavision and one of Roe's oldest and dearest friends, seconds Pytka's comments, noting, "Just about the only thing Bill never succeeded at was teaching me to play great golf."

Looking back on his career, Roe marvels at "the places I've been and the



The X-Files' Gillian Anderson and Duchovny pose with Roe and his ASC Award for his work on the show.

things I've seen. I remember getting in my car after shooting an all-nighter on *X-Files* and thinking, 'This is so cool.' ●



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Canon Updates C100, Adds Cine Zoom

Canon has introduced the Cinema EOS C100 Mark II digital video camera, the second generation of the company's C100 professional Super 35mm 8.3-megapixel CMOS camera. The C100 Mark II features advanced image processing, AVCHD and MP4 1920x1080/60p recording, uncompressed YCbCr output from HDMI, and a range of other new and enhanced capabilities for improved picture quality, operability and convenient handling.

Delivering a cinematic look with shallow depth of field and high sensitivity in low-light environments, the C100 Mark II weighs only 2.5 pounds and is compatible with more than 100 Canon EF Series lenses, including STM models, which can deliver smooth and silent autofocus during filmmaking.

The existing C100 design has been enhanced to include a large-size detachable eyecup for the camera's large 68-degree tilting 0.45" 1.23 megapixel color EVF. Another major redesign is an innovatively hinged 3.5" 1.23 megapixel OLED display panel, which delivers 100-percent field-of-view coverage, wide color range support, and improved viewing even in bright sunshine. The new hinge design, which folds the panel shut when stowed, opens 180 degrees to reveal function keys and a joystick. The panel can open even further to 270 degrees to deploy against the side of the camera, providing monitoring for production personnel. Additional design improvements on the camera body include 17 assignable recessed function buttons, dual SD card slots with a transparent cover, and a simplified battery insertion and removal release.

Central to many of the C100 Mark II's new features is its advanced Canon DigiC DV4 image processor, which separates the RGB output from the camera's 8.3 megapixel CMOS imager into three

individual 8-megapixel signals for noticeably improved image quality. The processor also includes a new deBayering algorithm to help minimize moiré and reduce video noise even at high ISO speeds. Additional features include Dual Pixel CMOS AF and wireless file-transfer capabilities.

Canon has also introduced the Cine-Servo 50-1,000mm T5.0-8.9 Ultra-Telephoto zoom lens. The 20:1 zoom lens features a built-in 1.5x extender (for a focal range of 75-1,500mm) and offers cinematographers new possibilities for shooting HD, 2K and 4K imagery on single-sensor cameras.

Available in either EF or PL mount, the Cine-Servo 50-1,000mm boasts a compact form factor of only 15.9" (PL version)



and a weight of only 14.6 pounds. The lens features outstanding aberration correction and high image quality extending from the center to all edges. Ruggedly built, the lens also features a removable Digital Drive unit with a convenient zoom/rocker switch, programmable zoom and focus settings, and data connections for use with broadcast-type field/studio servo-demand controls for zoom and focus. For cinema-style operation, the lens features clearly engraved markings (in feet and meters) on both sides of the barrel, an 11-blade iris for smooth bokeh, and compatibility with lens-support rods, 0.8- and 0.5-type gear modules, matte boxes and other cinema accessories.

The lens is compliant with industry-standard camera-to-lens communication protocols to help ensure compatibility and performance with multiple brands and models of 4K, UHD and HD cameras. These standards include 12-pin serial communication, Cooke's i Technology and Canon's EOS-Lens data communication technology. In the case of the Canon Cinema EOS system, precise lens data is displayed in the EOS camera's viewfinder as well as recorded in the video file as metadata along with the model name of the lens and the focal-length setting.

For additional information, visit www.usa.canon.com.

Vantage Adds Hawk Vintage Zoom

Vantage Film has introduced the Hawk V-Plus Vintage '74 45-90mm T2.9 Front Anamorphic zoom lens. The lens delivers all of the versatility and advantages of a zoom while providing the same performance and signature 1970s look as the other lenses in the V-Plus Vintage '74 anamorphic range.



Based on the popular V-Plus Front Anamorphic lens, the 45-90mm zoom is the result of two years of testing. It has 22 optical elements that provide 32 glass-to-air surfaces. Every surface has been modified to create the distinctive Hawk Vintage '74 look.

For additional information, visit www.vantagefilm.com.

Adorama Distributes Aries Blackbird Drone

Adorama is the exclusive distributor for the Blackbird X10 camera drone from Aries. With a flight time of up to 25 minutes per charge, the professional, remotely controlled aerial quadcopter captures first-person video from up to 1,500'. With its unique onboard camera, the Blackbird X10 is capable of shooting up to 1080p/30 fps full HD video, as well as 16-megapixel still images in ultra-high resolution.

The high-tech chopper features integrated flight and camera control, six-axis gyro stability, GPS accuracy, advanced intelligent



flight control systems, a weather-protected build, and a wide, stable landing base. Additionally, the Aries Blackbird X10 features simple and flexible operating controls via its transmitter's ergonomic controller grip, stable and reliable performance, and a 1,640' transmitter range.

With complete 2.4GHz Wi-Fi integration that connects to mobile device platforms running Android or iOS, users can control the Blackbird X10 camera through the Aries App in real time and direct the



camera to precisely frame the subject or scene. The app's mobile display enables users to start and stop video recordings, take a still shot, or make changes to the settings and vary the field of view of the lens. Mobile devices can be securely mounted to the main controller using the Mobile Device Mount, which ships with the Blackbird X10.

The Aries repeater, which also ships with the Blackbird X10, is a wireless communication device that works in the 2.4GHz frequency band, and is used to increase the effective communication distance between the mobile device and the quadcopter. The Aries Repeater increases the effective wireless range by approximately 1,000' depending on conditions.

The Blackbird X10 also boasts such safety measures as autopilot and Failsafe mode. When the flight controls are released or there is loss of control, the copter automatically hovers, using its GPS-accurate guidance to maintain position and height, regardless of wind conditions. With Failsafe mode, if the quadcopter loses the signal from the transmitter, the Automatic Flight Control system will pilot the Blackbird X10 to a safe height, then return it to the starting point and land it safely. The Blackbird X10 will automatically go into Failsafe mode when the transmitter is turned off or runs

out of batteries, if the flight distance is beyond the effective range of the transmitter signal, if there are obstructions between the transmitter and the quadcopter, or if there is interference in the transmitter signal.

The Aries Blackbird X10 is available now for \$799. For more information, visit www.adorama.com/I/Aries~Video-Equipment.



Panther Expands Camera Support

Panther has introduced Boogie Wheels, the Vario Jib S and the Wireless Handset.

With a unique, flexible design, Boogie Wheels keep any dolly steady on straight or curved track, even over rough track joints. The Boogie Wheels system includes four pairs of individually articulated skateboard wheels located underneath a swiveling platform that can accommodate any dolly.

The Vario Jib S is a small version of the Panther Vario Jib. The jib boasts an ergonomic design for easy handling and quick setup, and features a pan-and-tilt brake with integrated friction. An additional sliding weight allows users to find the perfect balance.

The ergonomic Wireless Handset works with the Panther Classic Dolly Plus as well as older Panther dollies. The system incorporates a hand unit with display for the dolly, a motion control interface and a wireless control option. The handset offers control of speed and height, with a percentage readout for the latter.

For additional information, visit www.panther.tv.



Manfrotto Unveils Fluid Head

Manfrotto has launched the XPro Fluid Head, which features the Manfrotto 200PL quick-release plate for easy swapping between photo and video applications. The head is equipped with a fluidity selector, which allows the user to switch between hard fluidity for slow tilt movement and soft fluidity for fast tilt movement. These fluid cartridge settings ensure that stable videos can be taken with any lens.

The compact, versatile and portable XPro Fluid Head weighs only 1.54 pounds and can support equipment up to 8.8 pounds. The head is available now for \$149.99.

For additional information, visit www.manfrotto.us.



Ikan Builds Lighting Solutions, Distributes Accessories

Houston, Texas-based Ikan International Corp. has introduced the White Star Fresnel fixtures and Piatto Lights.

The White Star line of Fresnel fixtures includes 100-, 200- and 350-watt lights. The 4" or 6" Fresnel lenses allow the lights to be focused between flood and spot, while the lightweight, heavy-duty aluminum housing is able to take the everyday wear and tear of lighting setups on location.

Ikan's Piatto Lights feature edge-lit LED technology and are available in four sizes and two shapes (round and rectangular).

lar). The edge-lit design eliminates the multiple shadows that are sometimes associated with traditional LED arrays, and instead creates a soft, smooth transition from light to shadow. The Piatto Lights are designed in an ultra-slim aluminum casing that is just over 1" thick.

Ikan has also partnered with Hong Kong-based PD Movie to distribute the latter's PD1 and PD2 Remote Air follow-focus system worldwide. "We saw a need for an affordable and user-friendly wireless follow-focus system," says Bryan Raymond, Ikan's national sales manager. "The Remote Air systems are remarkably intuitive to work with." The PD1 and PD2 are also available with a high torque motor as the PD1-HT and PD2-HT.

Additionally, Ikan has been named the exclusive U.S. distributor for E-Image's flagship line of Mono-Lock professional video tripods, which feature an 8-pound weight capacity.

For additional information, visit www.ikancorp.com.

Zylight Illuminates Black Light

Zylight has unveiled the F8-B, a black-light version of its popular LED Fresnel.

The F8-B offers a continuously adjustable beam angle (16-70 degrees), and features a proprietary ultraviolet chip for true black-light applications. It provides four times the fluorescent brightness of a

traditional 400-watt Fresnel black light at the same distance, but only draws about one quarter of the electrical power. With its patented flat focusing system and 8" Schott glass lens, the F8-B is one of the only dedicated LED UV instruments on the market that delivers variable zoom control.

The compact F8-B collapses to 4" thick for easy transport and storage. It is also water resistant (IP54) for use in challenging environments, and can be powered

by a worldwide AC adapter or even standard 14.4-volt camera battery. Like other Zylight models, the F8-B features ZyLink wireless technology, which makes it easy to link multiple Zylights for simultaneous remote control and full DMX operation.

For additional information, visit www.zylight.com.



Convergent Design Upgrades Odyssey

Convergent Design has begun shipping the Odyssey7Q+, the new flagship model of the company's Odyssey family of products. The Odyssey7Q+ expands on the capabilities of its predecessor, the Odyssey7Q, while maintaining all of the functionality, performance and ease of use.

The addition of HDMI 1.4b input allows the Odyssey7Q+ to capture 4K and UltraHD video over HDMI. It can also record HD, 2K, raw (with Record Options), uncompressed DPX and Apple ProRes 4:2:2 (HQ). The Convergent Design website allows users to purchase or rent additional recording options, including ArriRaw (Alexa), Canon Cinema Raw (C500), FS Raw (Sony FS7 and FS700) and POV Raw (IO Industries and Indiecams cameras).

The Odyssey7Q+ features an OLED 1280x800 monitor with true blacks, accurate colors, 3,400:1 extended color gamut, and a 176-degree viewing angle. The Odyssey7Q+ also boasts an extensive array of image-analysis tools, including RGB waveform, RGB histogram, false color, pixel zoom with finger drag, three-mode focus assist and monitoring LUTs. The multi-stream monitoring mode allows up to four HD video inputs to be viewed at once in a quad-split view, or to be live-switched in full screen.

Weighing just a little over 1 pound and measuring only 1" thick, the

Odyssey7Q+ can run on any power source from 6.5-34 volts. Aside from moving the locations of the HDMI input and output, the Odyssey7Q+ retains the form factor and all other characteristics of the Odyssey7Q. All Odyssey accessories from Convergent Design as well as third-party manufacturers are fully compatible with the Odyssey7Q+.

For additional information, visit www.convergent-design.com.

Panasonic Offers Field Recording

Panasonic has introduced the AJ-PG50 field recorder, the first to support the AVC-Ultra codec. With microP2 card compatibility, a variety of professional interfaces and diverse networking capabilities, the PG50 is ideal for backup recording, monitoring, previewing, file copying and other critical field uses. The recorder also provides a legacy solution so that users of older Panasonic P2 HD cameras can leverage newer AVC-Ultra codecs through outboard recording to the PG50.



With the AVC-Ultra codec family as standard, the PG50 allows users to select the image quality and bit rate to match their application. The PG50's high-resolution AVC-Proxy encodes in parallel with higher bandwidth production formats, enabling fast, efficient offline editing at bit rates from 6 Mbps down to 800 kbps. In addition to 1080/59.94i, the PG50 supports 59.94p and 720p multi HD format and SD recording, and is 59.94 Hz/50 Hz switchable for convenient use in international productions. The recorder also offers legacy recording in DVCPro HD, DVCPro50, DVCPro and DV.

The recorder is equipped with two microP2 card slots, one standard P2 card slot and one SD card slot. The PG50 also incorporates a variety of interfaces, including HDMI input/output and 3G SDI input/output, facilitating connection to a wide range of video and audio devices for recording and playback. It also has a high-

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speed USB 3.0 interface for transferring backup data to an external storage device and previewing externally stored files.

The recorder's standard LAN (Ethernet) port allows network connection via a wired LAN. When installed with the optional AJ-WM30 Wireless Module, the PG50 gains wireless LAN connectivity, enabling access to a variety of functions (proxy preview, camera remote, file transfer, playlist editing) from a network-connected PC/Mac, tablet device or smart phone, affording a cost-effective IT solution.

The PG50 can send data directly to a network server via FTP, allowing broadcast stations to edit recorded data immediately. The PG50 is also capable of proxy image streaming via a wired LAN, wireless LAN or 4G/LTE network. Two streaming modes (SHQ and full HD AVC-G6) are available, so the most suitable mode can be selected according to the line condition and application.

The PG50 comes with a high-resolution QHD LCD 3.5" monitor; thumbnail images can be displayed, allowing instant playback, deletion or copying of selected clips. Full-screen display of images enables the use of the PG50 as a recording or preview monitor. Additionally, waveform and vectorscope can be displayed on the LCD monitor, as well as a 4:3 marker. Audio capabilities include two XLR audio inputs, and recording up to four channels of 48kHz 24-bit audio in AVC-Intra and AVC-LongG.

Often-used functions can be allocated to six user buttons, and a user file containing the settings can be saved to an SD card. Playback functions include audio playback, playback position selection, repeat playback, and down-conversion from HD to SD. Versatile recording functions include simultaneous recording on two microP2 cards, dual codec recording, and hot-swap recording for uninterrupted recording between two microP2 cards.

The PG50's main unit weighs just 2.4 pounds and is small enough to use with one hand. A 5,800-mAh battery pack, which provides approximately 170 minutes of continuous playback time, mounts to the main unit's back. The PG50 can also plug into an ordinary AC outlet via a provided adapter.

For additional information, visit www.panasonic.com/broadcast.



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Cinedeck Unveils Modular ZX Platform

Cinedeck, a developer of record, ingest and transcode systems for digital cinema, broadcast and postproduction, has introduced the Cinedeck ZX, a modular 4K/UHDTV-1/HD/SD platform that allows users to cost-effectively build fast, custom camera-to-post workflows. The rack-mount ZX is based on the footprint of Cinedeck's flagship MX system.

The Cinedeck ZX is available in three fast hardware options, to which a range of Cinedeck-developed plug-in workflow packages can be easily added; users simply select the packages they need to meet their particular workflow requirements. Plug-in packages cover a wide range of flexible options, including formats, networking and connectivity, codecs and wrappers, and deck and telecine control.

The base level ZX20 provides two channels of 2K, HD or SD, with optional 4K playback. The mid-level ZX40 provides more processing power to deliver four channels of 2K, HD or SD and, when fully loaded with plug-in packages, is equivalent to the 4K-capable Cinedeck MX. The "turbo-level" ZX45 adds even greater processing power to support 4K and UHDTV-1 at 60p and four channels of 2K, HD or SD at 60p, including visually lossless JPEG2000. Cinedeck ZX systems also feature v5 64-bit native software, which supports a range of real-time features, such as watermarking and image manipulations, along with enhanced stability and support for AS-11/DPP delivery standards.

For networking connectivity, all three Cinedeck ZX systems can be fitted with the customer's choice of either 10Gb Ethernet or 8Gb fiber networking, or custom adapters for high-bandwidth local storage. Customers can also choose from a selection of codec and wrapper packages to support many media environments, including editorial platforms from Avid, Apple and Adobe. Each codec and wrapper package includes

all supported codecs available from Cinedeck's comprehensive range within the specified wrapper. A range of 4K/UHDTV-1 recording and playback options are also available.

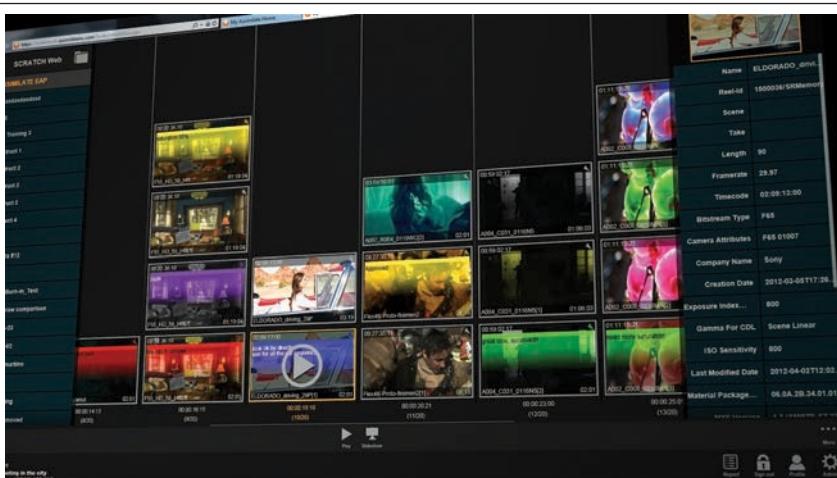
To keep the purchase price competitive, Cinedeck has foregone the built-in touch-screen display, jog-shuttle control and solid-state card readers found on the MX; instead, users can select from off-the-shelf monitoring, control panels and memory-card readers.

For additional information, visit www.cinedeck.com.

SpectraCal Plugs Into Scratch

SpectraCal, Inc. has announced a tight collaboration with Assimilate to provide integrated 3D LUT calibration support for Assimilate's Scratch and Scratch Lab digital workflow tools. This ensures the color calibrations are reference-level for any content viewed through the Scratch application and greatly reduces the cost of maintaining a calibrated system. The process for the user is entirely automated — a click of a button accomplishes all the necessary calibration processes.

This new plug-in provides corrective



Assimilate Launches Scratch Web

Assimilate, a leading provider of digital dailies and digital-intermediate workflow tools, has announced Scratch Web, the easiest and most ideal way for Scratch and Scratch Lab artists to set up secure, cloud-based client review sessions, eliminating multiple review steps and creating significant time savings. Scratch Web artists can seamlessly create a secure content channel for dailies, DI or visual-effects review sessions with a few simple clicks directly from within the Scratch or Lab UI.

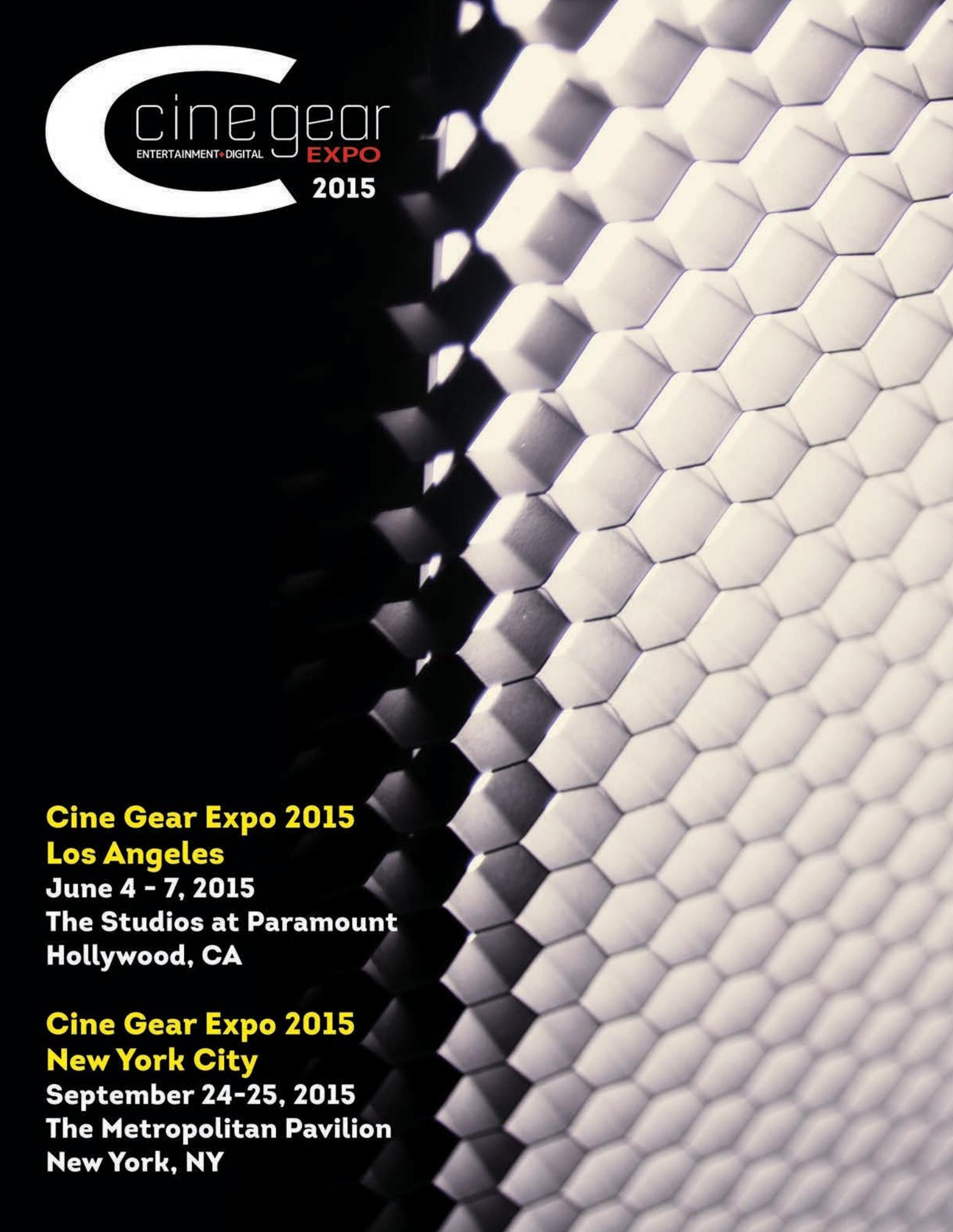
Scratch Web enables a fluid, intuitive workflow for publishing a single clip or an entire Construct — including all metadata — without ever leaving Scratch or Scratch Lab. Artists with a MyAssimilate account can seamlessly and securely publish their local Scratch or Lab Construct to a corresponding cloud-based Construct on their Scratch Web channel with the click of a button. Scratch Web channels can be

reviewed from any device with any Web browser.

Scratch Web fosters collaboration via a flexible notes feature. Both authors and reviewers can attach or append configurable notes to any shot or sequence, just as they can in a local Scratch. Scratch Web channels can be configured to be secure and private for content, such as a dailies review, or shared publicly with anyone, for content such as show reels; invitations to provide client access are simple and secure via e-mail.

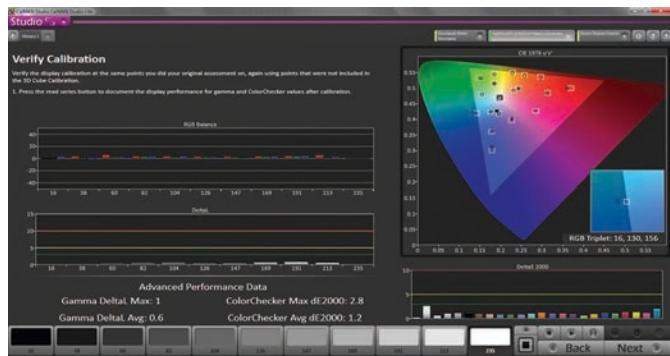
Scratch Web channels are available immediately via Assimilate's website. The basic subscription is \$79 per month (with up to 20GB of storage), and the Extended subscription is \$249 per month (with up to 100GB of storage). A free introductory account is available to any Scratch or Scratch Lab artist who is current on maintenance and support.

For additional information, visit www.assimilateinc.com.

The background of the entire page features a large, abstract graphic on the right side. It consists of a grid of white, three-dimensional, hexagonal or polygonal shapes that create a sense of depth and perspective, receding towards the center. The left side of the image is solid black.

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3D LUT capabilities from SpectraCal's CalMan display-calibration software, allowing users to color-calibrate all video output from the Scratch software. In previous use, color calibration for professional monitors required an expensive pattern generator to ensure reference-level video output during the calibration process. The CalMan plug-in enables significant cost savings and ease of use by using output directly from within Scratch itself to generate the necessary color swatches.

To create a corrective 3D LUT with the CalMan plug-in, users will need a supported version of CalMan 5 software and a supported light-measurement device or meter. During the calibration process, the meter reads luminance and chromaticity values of the pattern swatches generated from Scratch. These measurements are then used by the CalMan application to generate three-dimensional correction data specific to the monitor's unique output characteristics. This data is consolidated into a 3D LUT file that is then uploaded into Scratch.

The plug-in for Assimilate Scratch and Scratch Lab is available with several CalMan 5 software products, including CalMan Studio Express, CalMan Studio Lite and CalMan Studio.

For additional information, visit www.assimilateinc.com and www.spectracal.com.

Leader Enhances Monitor Range

Leader Instruments has expanded its range of portable waveform monitors with the LV5333, a multi-SDI monitor designed for use in studios, technical areas or attached to a camera support. The integral 6.5" XGA TFT LCD screen can also be used to display video-signal waveform,

vectorscope or the video image. Leader's Cinelite II, Cinelite Advanced, histogram, gamma display, gamut and level error display functions are included as standard. Other features include cable length, external timing display and field frequency deviation display.

The LV5333 is compatible with more than 20 HD-SDI/SD-SDI formats. It can be set to display YCbCr, YRGB, YGBR, GBR or RGB luminance waveform, color vector, five-bar, surround-sound level, status or video source. Freeze mode allows comparison of different SDI input signals. Thumbnail picture display can be selected with other multi-display operating modes for easy source identification. Input format, colorimetry, black burst or tri-level external reference input are auto-sensed. Any line of the video signal can be selected and displayed in waveform, vector or five-bar representations.

User-configurable multi-display combinations allow easy inspection of signal parameters. Full-screen displays can alternatively be selected to allow detailed review of specific elements. Up to eight channels of embedded audio can be displayed using bar level meters. SDI-embedded audio can be extracted and two user-selectable audio channels sent as AES/EBU to a BNC output; they can also be monitored via the headphone output.

Additional features include signal status and protocol checks, user-settable error monitoring and detection, digital line-selection, and menu control storage of 30 front-panel configurations. Screen shots, user-specific presets and software updates

can be communicated via detachable USB memory. The instrument can be controlled from a local or remote PC via Ethernet. Rear-panel connections include 3G/HD/SD SDI (A and B) input, external loop-through reference input, re-clocked SDI signal output, digital audio output, remote control of preset selections, DC power input (XLR) and Ethernet remote control. Additionally, the LV5333 can be optionally upgraded to enhance the exposure evaluation and gamma correction capability for cameras with S-Log-2 (high/low key functions), zoom-in and aperture function, and a user-customizable false-color function.

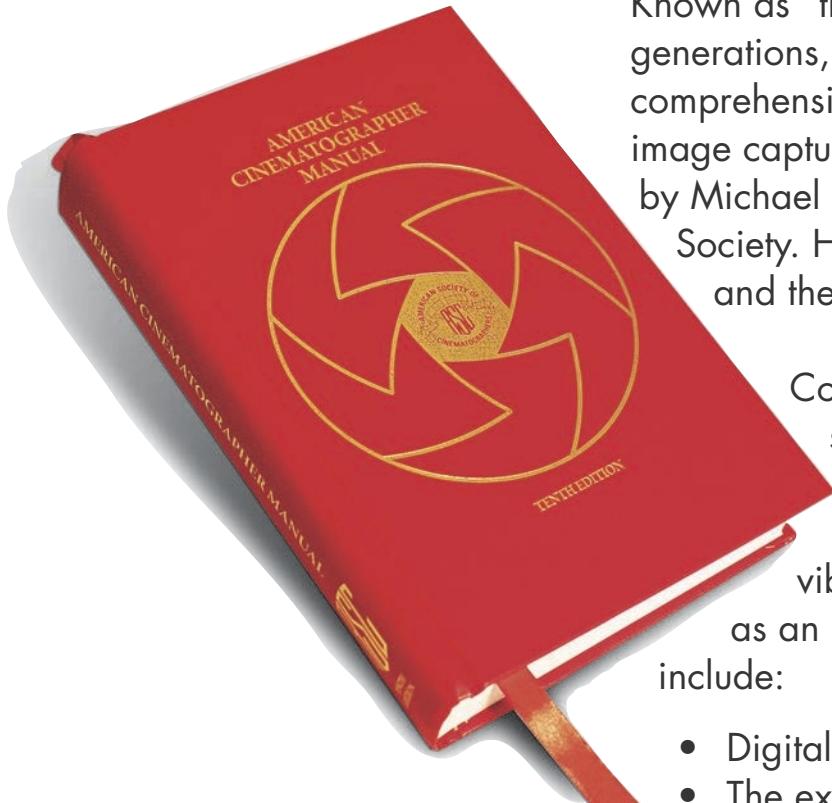


Leader Instruments has also introduced enhancements to its LV5490 SD/HD/4K picture and signal monitor. These include two-sample interleave, focus assist, frequency deviation auto-correction, phase difference detection, CIE 1931 chart with 4K color space, and user-adjustable measurement display sizes.

"The LV5490 is a high-precision broadcast test instrument," says Richard Heath, Leader's European regional development manager. "It can be used in a very wide range of roles, including precise matching of up to four studio or outside broadcast cameras at a time. It also doubles as a picture monitor for production crews working on location. The LV5490's multi-standard versatility makes this instrument ideal for use in standard-definition, high-definition and 4K ultra-high-definition standards, all in one compact housing."

For additional information, visit www.leaderamerica.com. ●





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The highly anticipated 10th Edition of the *American Cinematographer Manual* is now available!

Known as “the filmmaker’s bible” for several generations, this invaluable resource is more comprehensive than ever — moving into digital image capture. The 10th AC Manual was edited by Michael Goi, ASC, a former president of the Society. He is a key speaker on technology and the history of cinema.

Completely re-imagined to reflect the sweeping technological changes our industry has experienced since the last edition, the 10th AC Manual is vibrant and essential reading, as well as an invaluable field resource. Subjects include:

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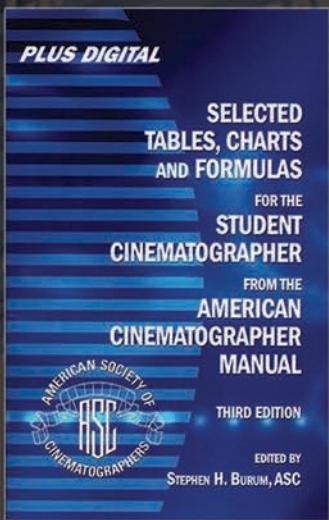
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Clubhouse News



Top left: Christian La Fountaine, ASC. Top right: Checco Varese, ASC.
Bottom: Accompanied by Stephen Lighthill, ASC (far left) and Kodak's
Lorette Bayle (second from left), John Bailey, ASC (framed by arch)
leads AFI cinematography fellows through an exhibit at the Getty Museum.



Society Welcomes La Fountaine

New active member **Christian La Fountaine, ASC** grew up on sound stages watching his father, ASC member George La Fountaine, move between commercials, sports, musical specials and classic television series such as *WKRP in Cincinnati*, *Newhart* and *Dear John*. After graduating from the University of California, Berkeley, Christian began his career as a film loader working for the Mary Tyler Moore Company on the television series *Hill Street Blues* with Jack Whitman, ASC. When the series ended, La Fountaine went on to work as a camera assistant for Richard Kline, ASC on numerous commercials and feature films. La Fountaine spent 20 years working with such

luminaries as ASC members Leonard J. South, Charles F. Wheeler, John A. Alonzo, Rick Gunter and Wayne Kennan before moving into the roll of director of photography for the television series *Life With Bonnie*.

La Fountaine continues to work as a cinematographer for the television series *Two Broke Girls*, and he has won three Emmy Awards for his work on the series *How I Met Your Mother*.

Pruss Becomes Associate Member

New associate member Douglas Pruss currently serves as the chief executive officer of All Axis Systems Inc. For 10 years,

Pruss has been working with stabilized heads to give cinematographers and operators greater flexibility. Pruss holds a bachelor's degree in motion pictures from Ryerson University and spent more than 29 years working as a 1st and 2nd AC for numerous television series and feature films.

Bailey Leads AFI Fellows Through Getty

John Bailey, ASC recently led a group of American Film Institute cinematography fellows through the J. Paul Getty Museum's presentation of "Nationality Doubtful," a retrospective of photographer Josef Koudelka's work. Bailey — who was joined on the excursion by **Stephen Lighthill, ASC**, senior filmmaker in residence at the AFI, and Kodak's Lorette Bayle — provided an introduction and background on Koudelka and the exhibit before making himself available for individual questions or discussions as students explored the photographs on display. Bailey and Lighthill coordinate museum tours with the AFI cinematography fellows once or twice a year.

Coffee and Conversation With Varese

The Society recently hosted a "Coffee and Conversation" event with **Checco Varese, ASC**. Presented at the Clubhouse in Hollywood, the event was moderated by AC contributing writer Iain Stasukovich. Varese discussed his early career before segueing into his work as a cinematographer on the television series *The Strain* (AC Aug. '14). Clips were shown from the series' pilot episode as Varese discussed blending realism with a "comic-book" approach. The 11th episode of the first season, "The Third Rail," was screened in its entirety, accompanied by a running commentary from Varese and questions from the audience.

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Close-up Michael Weaver, ASC

When you were a child, what film made the strongest impression on you?

The Godfather. I recall seeing it when I was about 10. I had never felt transported to another place and time in that way.

Which cinematographers, past or present, do you most admire?

That would be an extremely long list. If pressed I'd have to say the biggest influences on me have been Conrad Hall [ASC], Gordon Willis [ASC], Emmanuel Lubezki [ASC, AMC], Roger Deakins [ASC, BSC] and Robert Richardson [ASC].

What sparked your interest in photography?

In college I took an entry-level photography class as an elective. I fell in love with the chemical process and printing. The possibilities seemed limitless.

Where did you train and/or study?

San Jose State University, but I really started to learn by shooting industrials.

Who were your early teachers or mentors?

I think my greatest teachers and mentors were the cameramen I was able to collaborate with during my decade as a gaffer. I was fortunate to work with some very generous cinematographers: Vance Burberry; James Glennon, ASC; Feliks Parnell; Kees van Oostrum, ASC; Jeff Jur, ASC; Edward Pei, ASC; Levie Isaacks, ASC — the list goes on. They all left an impression on me. It was a great bonus in my development to carry some of the knowledge and experience of each of these guys with me, moving forward.

What are some of your key artistic influences?

The cinema of the Seventies, Edward Hopper paintings, and anything and everything Conrad Hall and Martin Scorsese.

How did you get your first break in the business?

I got an internship at Lockheed in the film-and-video department during the thriving industrial-film days of 1980s Silicon Valley. It was a creative environment where we were free to

experiment and self-educate. Through that internship I landed my first job on a feature with an indie producer who worked there. I was able to go to Puerto Rico and operate a Panaflex for the first time. By take two, I knew there was no going back.



What has been your most satisfying moment on a project?

I don't allow myself a lot of victories. I fear that the day I feel satisfied is the day I'm not trying hard enough.

Have you made any memorable blunders?

Only in my personal life.

What is the best professional advice you've ever received?

Never show fear.

What recent books, films or artworks have inspired you?

The scale and vision of the work on *Gravity*.

Do you have any favorite genres, or genres you would like to try?

A Western or a period gangster piece.

If you weren't a cinematographer, what might you be doing instead?

I set out to be a psychologist, but there was too much homework.

Which ASC cinematographers recommended you for membership?

David Klein, Ken Zunder and Adam Kane.

How has ASC membership impacted your life and career?

It's given me a greater sense of responsibility in regard to the craft — to uphold tradition and pass it along.





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I gotta say, you looked great on the red carpet. Let's talk about our pool picks. Who'd you pick for the 'Best Director' category?

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And *The Grand Budapest Hotel*.

And *Foxcatcher*.

And *The Imitation Game*.

DIGITAL

Right... I'm not sure you're grasping how pools work...

KODAK FILM

Well, all four directors — and their cinematographers, of course — believed their stories were worthy of film and required the rich, emotive visuals that only silver halide delivers, so they insisted upon shooting their pictures on KODAK Film. I don't see how I could have chosen just one.

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